

2

AD-A225 574



DTIC FILE COPY

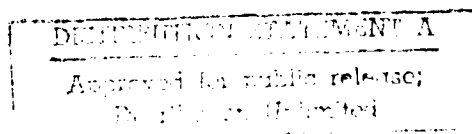
DRAFT ENVIRONMENTAL IMPACT STATEMENT

PROPOSED CLOSURE OF BERGSTROM AFB, TEXAS

DTIC
AUG 20 1990
E

UNITED STATES AIR FORCE

JULY 1990



90 08 1990

DRAFT ENVIRONMENTAL IMPACT STATEMENT

PROPOSED CLOSURE OF BERGSTROM AIR FORCE BASE, TEXAS

Accession For	
NTIS GEMRI	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
<i>per ltr</i>	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
<i>A-1</i>	

United States Air Force

July 1990



COVER SHEET

DRAFT ENVIRONMENTAL IMPACT STATEMENT PROPOSED CLOSURE OF BERGSTROM AIR FORCE BASE, TEXAS

- a. **Responsible Agency:** U.S. Air Force
- b. **Proposed Action:** Closure of Bergstrom Air Force Base (AFB), Texas
- c. **Comments and inquiries should be directed to:** Lt Col Tom Bartol, Director of Programs and Environmental, AFRCE-BMS/DEP, Norton AFB, California 92409-6448, (714) 382-4891.
- d. **Designation:** Draft Environmental Impact Statement (DEIS)
- e. **Abstract:** On 29 January 1990, the Secretary of Defense announced a proposal to close a number of military installations, including four Air Force bases. Bergstrom AFB, Texas, is one of the bases proposed for closure by the end of December 1992. In accordance with the National Environmental Policy Act (NEPA), the potential environmental consequences of that action and the no action alternative have been analyzed and are described in this DEIS. No reasonable alternatives to closure of Bergstrom AFB have been identified other than the no action alternative. The DEIS includes analyses of community setting, land use and aesthetics, transportation, utilities, hazardous materials/wastes, geology and soils, water resources, air quality, noise, biological resources, and cultural and paleontological resources. Adverse impacts to the human (biophysical) environment were found to be negligible. However, remediation of hazardous waste sites on the base will be conducted in accordance with the Installation Restoration Program. Additionally, data recovery to evaluate two potentially National Register of Historic Places eligible prehistoric sites will be undertaken prior to the disposal of excess property. Beneficial environmental effects of base closure include improved air quality and reduced noise. When the Air Force closes a base, a caretaker force is established to maintain buildings, grounds, and essential utility systems, and to control access to the base. The property is then declared excess and made available only to the General Services Administration (GSA) for reuse by other federal agencies or for disposal to local governments or the private sector. GSA is responsible for compliance with NEPA and the property disposal laws.
- f. **Comments should be received by:** 10 September 1990.

CONTENTS

	<u>Page</u>
1.0 PURPOSE AND NEED FOR ACTION	1-1
1.1 Introduction	1-1
1.2 Scoping Process	1-1
1.2.1 Summary of Scoping Issues	1-2
1.2.2 Issues Beyond the Scope of the Environmental Impact Statement	1-2
1.2.3 Related Studies	1-2
1.3 Relevant Federal, State, and Local Statutes, Regulations, and Guidelines	1-3
2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION	2-1
2.1 Introduction	2-1
2.2 Description of the Proposed Action	2-1
2.3 No Action Alternative	2-4
2.4 Alternatives Eliminated From Further Consideration	2-4
2.5 Comparison of Environmental Impacts	2-6
2.5.1 Closure Actions	2-6
2.5.2 No Action	2-6
2.5.3 Relocation Actions	2-8
3.0 AFFECTED ENVIRONMENT	3-1
3.1 Installation Background	3-1
3.2 Local Community	3-1
3.2.1 Community Setting	3-4
3.2.2 Land Use and Aesthetics	3-4
3.2.3 Transportation	3-10
3.2.4 Utilities	3-14
3.3 Hazardous Materials/Waste Management	3-15
3.3.1 Hazardous Materials Management	3-15
3.3.2 Hazardous Waste Management	3-19
3.3.3 Installation Restoration Program Sites	3-20
3.3.4 Asbestos	3-24
3.3.5 Polychlorinated Biphenyls	3-24
3.3.6 Radon.	3-25
3.3.7 Radioactive Waste	3-25
3.3.8 Ordnance	3-25
3.4 Natural Environment	3-26
3.4.1 Geology and Soils	3-26
3.4.2 Water Resources	3-28
3.4.3 Air Quality	3-31
3.4.4 Noise	3-32
3.4.5 Biological Resources	3-35
3.4.6 Cultural and Paleontological Resources	3-41

CONTENTS

	<u>Page</u>
4.0 ENVIRONMENTAL IMPACTS	4-1
4.1 Local Community	4-1
4.1.1 Community Setting	4-1
4.1.2 Land Use and Aesthetics	4-2
4.1.3 Transportation	4-2
4.1.4 Utilities	4-4
4.2 Hazardous Materials/Waste Management	4-5
4.2.1 Hazardous Materials Management	4-5
4.2.2 Hazardous Waste Management	4-5
4.2.3 Installation Restoration Program Sites	4-5
4.2.4 Asbestos	4-5
4.2.5 Polychlorinated Biphenyls	4-6
4.2.6 Radon	4-6
4.2.7 Radioactive Waste	4-6
4.2.8 Ordnance	4-6
4.3 Natural Environment	4-6
4.3.1 Geology and Soils	4-6
4.3.2 Water Resources	4-6
4.3.3 Air Quality	4-7
4.3.4 Noise	4-7
4.3.5 Biological Resources	4-9
4.3.6 Cultural and Paleontological Resources	4-9
4.4 Potential Mitigation Measures	4-10
4.5 Relationship Between Short-Term Uses and Long-Term Productivity of the Environment	4-10
4.6 Irreversible and Irretrievable Commitment of Resources	4-10
5.0 CONSULTATION AND COORDINATION	5-1
6.0 LIST OF PREPARERS	6-1
7.0 REFERENCES	7-1
APPENDICES	
A - Glossary of Terms and Acronyms	
B - Record of Public Notification	
C - Draft Environmental Impact Statement Mailing List	
D - Air Force Policy on Management of Asbestos at Bases For Which the General Services Administration is the Disposal Agent	

LIST OF FIGURES

	<u>Page</u>
2.2-1 Relocation or Inactivation of Units From Bergstrom AFB, Texas	2-2
2.2-2 Manpower Drawdown Schedule for the Proposed Closure of Bergstrom AFB, Texas	2-5
3.2.1-1 Regional Setting, Bergstrom AFB, Texas	3-2
3.2.1-2 Bergstrom AFB, Texas and Vicinity	3-3
3.2.2-1 Existing Land Use, Bergstrom AFB, Texas, 1990	3-5
3.2.2-2 Land Use Compatibility Around Bergstrom AFB, Texas	3-7
3.2.2-3 Zoning in the Vicinity of Bergstrom, AFB, Texas	3-9
3.2.3-1 Airports and Airspace Surrounding Bergstrom AFB, Texas	3-13
3.3.3-1 Installation Restoration Program (IRP) Sites, Bergstrom AFB, Texas	3-23
3.4.1-1 Balcones Fault Zone, Travis County, Texas	3-27
3.4.2-1 Surface Water Drainage and Wells, Bergstrom AFB, Texas	3-30
3.4.4-1 Common Environmental Sound Levels, in dBA	3-34
3.4.4-2 Noise Contours and Accident Potential Zones, Bergstrom AFB, Texas, 1990	3-36
4.3.4-1 Comparison of 65 L _{dn} Noise Contours for RF-4C and Proposed F-16 Operations	4-8

LIST OF TABLES

	<u>Page</u>
S-1 Environmental Impacts Associated With Closure of Bergstrom AFB, Texas	S-3
2.5-1 Environmental Impacts Associated With Closure of Bergstrom AFB, Texas	2-7
2.5-2 Unit Relocations Organized by Receiving Locations	2-9
3.2.3-1 Existing Level of Service on Roadways in the Vicinity of Bergstrom AFB	3-11
3.3.1-1 Industrial Operations Utilizing Hazardous Materials, Bergstrom AFB, Texas	3-16
3.3.1-2 Underground Storage Tanks at Bergstrom AFB, Texas, 1990	3-18
3.3.3-1 Summary of Potential Hazardous Waste Sites	3-22
3.4.3-1 National and Texas Ambient Air Quality Standards	3-32
3.4.3-2 Travis County, Texas, Emissions Inventory, 1986	3-33
3.4.3-3 Bergstrom AFB, Texas, Air Emissions Inventory, 1986	3-33
3.4.5-1 Federally Listed, Federal-Candidate, and State-Sensitive Species, Bergstrom AFB, Texas, and Vicinity	3-40

SUMMARY

PURPOSE AND NEED

The Department of Defense (DOD) has a policy of identifying and disposing of facilities, property, and installations that are no longer essential to support current or planned force levels. In late 1989, the Air Force assessed its facility requirements in light of a perceived reduction in the Soviet military threat and future fiscal constraints, which led to plans to scale down the United States military force structure. These conclusions were reported to the Secretary of Defense. On January 29, 1990, the Secretary of Defense announced a proposal to close a number of military bases, including Bergstrom Air Force Base (AFB), Texas. The other Air Force bases proposed for closure in that announcement were Los Angeles AFB, California; Eaker AFB, Arkansas; and Myrtle Beach AFB, South Carolina.

Bergstrom AFB is proposed for closure because one of the proposals for scaling down the Air Force structure includes phasing the RF-4C aircraft out of the active-duty Air Force. The RF-4C aircraft now at Bergstrom AFB would be retired; therefore, there would no longer be a sufficient reason to keep the base open. The Air Force Reserve units, consisting of Headquarters 10th Air Force, and the 924th Tactical Fighter Group and their support units would remain at their current locations at Bergstrom AFB, as would the Air Force's Regional Corrosion Control Facility.

The decision on whether or not to proceed with the proposed closure of Bergstrom AFB will be made after consideration of the environmental consequences of the proposal, as described in this Environmental Impact Statement (EIS), as well as other factors. The no action alternative to the closure of Bergstrom AFB has also been studied. With this alternative, current operations at Bergstrom AFB would continue.

When the Air Force closes a base, the property is declared excess and made available only to the General Services Administration (GSA) for reuse by federal agencies or for disposal to local governments or the private sector. GSA is responsible for compliance with the National Environmental Policy Act (NEPA) and the property disposal laws. However, the Air Force would cooperate with GSA and would assist the local communities in that process through the DOD's Office of Economic Adjustment.

SCOPE OF STUDY

The Air Force initiated the scoping process on 9 February 1990 with the publication in the *Federal Register* of the Notice of Intent to prepare an EIS to address impacts of the proposed closure of Bergstrom AFB, Texas. A public scoping meeting was held on 19 March 1990 in Austin, Texas. This meeting was conducted to solicit public comments and to identify environmental concerns related to the possible closure actions. Comments were also invited on the environmental issues that should be analyzed in subsequent studies on the final disposition/reuse of base properties. The scope of study for this EIS was based on the results of the public scoping process, discussions with public officials, past experience with programs of a similar nature, and the requirements of NEPA.

According to the Council on Environmental Quality regulations for implementing NEPA, "The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment" (40 CFR 1500.1). The focus of this EIS is, therefore, on the evaluation of impacts to the environment associated with the proposed action and its alternatives. To provide the context in which impacts to the environment may occur, discussions of potential changes to community setting, land use and aesthetics, transportation, and community utility services are included in the EIS. In addition, issues related to current and future management of hazardous materials/wastes are discussed. Impacts to

the natural environment are evaluated for geology and soils, water resources, air quality, noise, biological resources, and cultural and paleontological resources. These impacts may occur as a direct result of base closure or as an indirect result of changes to the community or changes in hazardous material/waste management practices.

OTHER RELATED STUDIES

The Air Force is conducting five other studies as required by Title 10 United States Code (USC) 2687 prior to making a decision on base closure. These studies include strategic, operational, budgetary, fiscal, and local economic consequences. The Air Force will consult with state and local officials during preparation of the Local Economic Consequences Study. Copies of the economic study will be made available to members of Congress, state and local officials, and state Single Points of Contact under Executive Order 12372, *Intergovernmental Review of Federal Programs*.

CHANGES TO THE LOCAL COMMUNITIES

Base closure would cause changes in the support communities surrounding Bergstrom AFB.

Community Setting. The closure of Bergstrom AFB would reduce employment in the City of Austin and Travis County, Texas, by approximately 6,700 jobs, resulting in a decrease in local spending of approximately \$167 million annually. Total population outmigration may reach 12,400 people, about 2.1 percent of the projected 1993 population of 581,000 in the City of Austin. These reductions in employment and population may result in other socioeconomic effects such as increases in housing vacancy rates and the closure of certain public and commercial facilities. However, these socioeconomic consequences would not result in impacts to the biophysical environment while the base is under closure or caretaker status and are therefore not discussed in this document.

Land Use and Aesthetics. Existing land use patterns in the vicinity of the base may change as a result of the reduction in aircraft noise levels. Zoning would not immediately change. The lease agreement for the recreational area at Lake Travis would be terminated. Buildings and grounds would be minimally maintained until final disposition is decided. Therefore, some aesthetic changes may occur.

Transportation. Long-term reductions in base-related traffic (almost 5,000 vehicles per day) should have a positive effect on local roadways. Roadways in the Austin area should not be adversely affected by increased short-term truck traffic for transporting equipment during closure. Texas State Highway 71, which serves the base, would experience a temporary increase in congestion during closure equipment transport. Reductions in military aircraft operations may reduce the potential for aircraft accidents as well as reduce airspace conflicts.

Utilities. The solid waste stream would be reduced as a result of base closure, which would increase the lifespan of the landfill, although not to the same extent as the planned baling operations, which would be implemented only if the base remains open. Wastewater reduction should have an insignificant effect on the new wastewater treatment plant. Reduced water and energy consumption would have a positive effect.

HAZARDOUS MATERIALS/WASTES

The Installation Restoration Program is independent of closure and will not be affected. Base closure would significantly reduce hazardous materials storage, use, and possible spills and accidents - all positive impacts. Additional positive impacts are expected from the remediation of hazardous materials such as asbestos, oil/water separators, and underground/aboveground storage tanks.

IMPACTS TO THE ENVIRONMENT

Environmental impacts associated with closure of Bergstrom AFB are summarized in Table S-1. With the no action alternative, Bergstrom AFB would remain active. If Bergstrom AFB remains active, the City of Austin is expected to proceed with the development of new airport facilities at the Manor site. The consequences of this development are discussed in a separate document prepared by the Federal Aviation Administration. Beneficial environmental consequences associated with base closure would not be realized.

Table S-1
Environmental Impacts
Associated With Closure of Bergstrom AFB, Texas

Resource Category	Impacts of Base Closure
Geology and Soils	<ul style="list-style-type: none">• No impacts are expected to occur on geologic resources underlying the base.• Reduced disturbance of soil and a reduction in soil contamination potential from storage and spills of hazardous materials would result in positive impacts.
Water Resources	<ul style="list-style-type: none">• Positive impacts on surface and groundwater resources would occur through reduction of the potential risk of contamination from spills and stormwater runoff. Potable water demand onbase would be reduced by 291 million gallons annually, but the impact on the city's water supply would be minimal (less than 1%).
Air Quality	<ul style="list-style-type: none">• Air pollution emissions would be significantly reduced (524 tons per year), resulting in a positive impact. The Air Force Reserve units and Regional Corrosion Control Facility would continue operations, but the amount of pollutant emissions from these operations would not adversely affect the regional air quality.
Noise	<ul style="list-style-type: none">• Noise from aircraft operations would be significantly reduced, resulting in a positive impact. The Air Force Reserve units would continue operations and therefore continue producing noise, although the area covered by the L_{dn} 65 dB noise contour would be significantly smaller. Reductions of about 5,000 vehicles entering or leaving the base would reduce noise along Texas State Highway 71 in the vicinity.
Biological Resources	<ul style="list-style-type: none">• Base closure would have a positive impact on wildlife onbase.• Vegetation would be maintained at a minimal level by the caretaker program.
Cultural and Paleontological Resources	<ul style="list-style-type: none">• Potential for disturbance to cultural resources would be reduced with base closure. Impacts would be generally beneficial.• Two prehistoric sites are potentially eligible for the National Register of Historic Places.

1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

The Department of Defense (DOD) has a policy of identifying and disposing of facilities, property, and installations that are no longer essential to support current or planned force levels. In late 1989, the Air Force assessed its facility requirements in light of a perceived reduction in the Soviet military threat and future fiscal constraints, which led to plans to scale down the United States military force structure. These conclusions were reported to the Secretary of Defense. On January 29, 1990, the Secretary of Defense announced a proposal to close a number of military bases, including Bergstrom Air Force Base (AFB), Texas. The other Air Force bases proposed for closure in that announcement were Los Angeles AFB, California; Eaker AFB, Arkansas; and Myrtle Beach AFB, South Carolina.

Bergstrom AFB is proposed for closure because one of the proposals for scaling down the Air Force force structure includes phasing the RF-4C aircraft out of the active-duty Air Force. The RF-4C aircraft now at Bergstrom AFB would be retired; therefore, there would no longer be a sufficient reason to keep the base open.

Base closure is defined as inactivation or transfer of all active-duty Air Force units, personnel, and equipment from the base. No construction or demolition activities are planned as part of the proposed closure. Air Force Reserve (AFRES) units, consisting of Headquarters 10th Air Force, and the 924th Tactical Fighter Group and their support units would remain at their current location at Bergstrom AFB, as would the Air Force's Regional Corrosion Control Facility. A caretaker team would be established to maintain buildings, grounds, and water supply and other utility systems, and to provide adequate base security for those areas of the base not occupied by the AFRES units.

The decision on whether or not to proceed with the proposed closure of Bergstrom AFB will be made after consideration of the environmental consequences of the proposal, as well as other factors. The no action alternative has also been studied. With this alternative, current operations at Bergstrom AFB would continue. The Air Force has prepared this Environmental Impact Statement (EIS) to assess the potential environmental impacts of the proposed action and alternatives.

Separate EISs are being prepared to assess the potential environmental impacts associated with the proposed closure of Los Angeles AFB, Eaker AFB, and Myrtle Beach AFB, and the bases that are alternatives to closure of those bases. No decision has been made on the closure of Bergstrom AFB or the other bases. The EISs are being prepared to allow the decision maker to select from among any of the bases being analyzed in the EISs. It is possible that decisions would be made to close either fewer or more than the four bases announced.

When the Air Force closes a base, the property is declared excess and made available only to the General Services Administration (GSA) for reuse by federal agencies or for disposal to local governments or the private sector. GSA is responsible for compliance with the National Environmental Policy Act (NEPA) and the property disposal laws. However, the Air Force would cooperate with GSA and would assist the local communities in that process through the DOD's Office of Economic Adjustment.

1.2 SCOPING PROCESS

The Council on Environmental Quality regulations implementing NEPA require an early and open process for determining the scope of issues related to the proposed action. The Air Force initiated this process with the publication of a Notice of Intent to prepare an EIS for the proposed closure action in the *Federal Register* on 9 February 1990 (Appendix B). Soon after, written requests were sent by the Air Force to the responsible federal, state, and local agencies to submit their concerns and issues to be analyzed in the EIS. On 19 March 1990, a public scoping meeting was conducted at

the LBJ Library Auditorium in Austin, Texas, to solicit comments and identify concerns related to the closure of Bergstrom AFB. The scope of study for this EIS was based on the results of the public scoping process, discussions with public officials, past experience with programs of a similar nature, and the requirements of NEPA.

1.2.1 Summary of Scoping Issues

A wide range of issues related to the natural and socioeconomic environment were identified at the scoping meeting or in written statements received before or after the meeting. Comments that are related to environmental issues and addressed in this EIS include potential impacts of base closure on soil and water resources from possible contamination by toxic/hazardous substances on the base, changes in noise levels from reduction in military aircraft flights, and effects on the landfill at the south end of the runway.

A number of comments were made on the socioeconomic impacts of base closure, to keep Bergstrom AFB open, to use the base as a joint military-civilian or strictly civilian facility, and on the proposed construction of a new airport for the City of Austin at the Manor site. Socioeconomic concerns centered on the loss of jobs and income and population outmigration exacerbating the already depressed economy of the Austin area. The loss of medical and other services to military retirees, a decrease in school enrollments, and loss of revenues as well as volunteer services provided by military families to school districts were also reported as areas of concern. Additional concerns related to a potential increase in utility rates with decreased demand for their services, the loss of tax revenues affecting municipal services and bond ratings, and an increase in housing vacancies resulting in a decrease in property values in an already depressed housing market.

Comments made to keep Bergstrom AFB open included suggestions to use the base to accommodate other military or naval operations; support, research and development missions; quasi-military operations carried out by the Coast Guard, Border Patrol, Drug Enforcement Agency, Federal Bureau of Investigation, Immigration and Naturalization Service, etc.; and non-military operations currently performed by units of federal agencies and departments in the Austin area at sites not owned by the federal government.

A number of comments called for using the base as the site for the proposed new airport in the Austin area. It was pointed out that the currently proposed Manor site would have significant impacts on noise levels, air and water quality, wildlife, prairies, wetlands, and prime farmlands. Moving the civilian airport to Bergstrom AFB would avoid most of these impacts and result in millions of dollars in cost savings and reduced suburban sprawl and traffic congestion.

1.2.2 Issues Beyond the Scope of the Environmental Impact Statement

Concerns and issues regarding impacts that would be caused by the disposal of the facilities or their reuse were also expressed in the public scoping meeting and through written comments received during the comment period. Issues that were identified as beyond the scope of this EIS include the following:

- Environmental and socioeconomic impacts of Bergstrom AFB disposition/reuse.
- Potential socioeconomic impacts that are not interrelated to the natural environment (40 CFR 1508.14).

1.2.3 Related Studies

Other studies have been recently completed or are being conducted by federal, state, or local agencies that are closely related to the proposed closure of Bergstrom AFB. In addition to this EIS, the Air Force is conducting five other studies as required by Title 10 USC 2687. These are:

- A strategic study that will address the changing global military power base and examine the interplay between force structure, national defense policy, and power projection requirements. This study will also address the impact of reducing conventional, strategic, and space systems as the threat to national security is reduced.
- An operational study that will address the operational environment of aircraft and identify special operational characteristics, restricted areas, military operating areas, range-use rights, and other significant operational issues. It will also include all tenant units and joint service missions supported or needing replacement if the decision is made to close the installation.
- A budgetary study that will determine current-year programmed dollar costs and savings associated with the relocation or retirement of the aircraft and the inactivation or relocation of associated operations and support units.
- A fiscal study that will use the budget evaluation as a springboard, and analyze past, present, and future costs and savings associated with the retirement of aircraft and the inactivation or relocation of associated operational and support units. Costs of closing and savings will be detailed through a life-cycle cost model.
- A local economic consequences study that will address the direct payroll loss to the immediate community and the secondary payroll impact on local businesses caused by the loss of military personnel, dependents, and civilian workforce. In addition, the study will examine the effects on the local real estate market and schools from a loss of personnel. If data are available, the study will address losses to other local industries that depend on the base. The study will also cover projected growth in the community and the potential for reuse, both interim and long term.

In April 1990, the City of Austin completed the *Bergstrom AFB Feasibility Study* to determine the feasibility of using Bergstrom AFB as a viable alternative to the Manor site for the establishment of a new commercial airport to serve the Austin metropolitan region well into the 21st century.

In 1990, the Federal Aviation Administration prepared environmental documentation to support the airport layout plan approval, airport location approval, and construction of a new commercial service airport to be located in Manor, Texas, to serve the City of Austin and the surrounding communities.

1.3 RELEVANT FEDERAL, STATE, AND LOCAL STATUTES, REGULATIONS, AND GUIDELINES

Federal:

- NEPA: Requires consideration of environmental impacts in federal decision-making.
- President's Council on Environmental Quality Regulations: Implement the NEPA process.
- Endangered Species Act of 1973: Conserves ecosystems for the use of endangered or threatened species.
- National Historic Preservation Act: Protects districts, buildings, sites, and objects significant to American history.
- Clean Water Act: Reduces water pollution and the discharge of toxic and waste materials into all waters.

- **Clean Air Act:** Reduces air pollution dangerous to public health, crops, livestock, and property.
- **Resource Conservation and Recovery Act:** Regulates the management of hazardous waste.
- **Federal Insecticide, Fungicide, and Rodenticide Act:** Controls the application of pesticides to provide greater protection to humans and the environment.
- **Comprehensive Environmental Response, Compensation and Liability Act, as amended by the Superfund Amendments and Reauthorization Act:** Provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and the cleanup of inactive hazardous waste disposal sites.
- **Toxic Substance Control Act:** Regulates commerce and protects human health and the environment by requiring testing and use restrictions on certain chemical substances.
- **Intergovernmental Review of Federal Programs, Executive Order 12372:** Provides the opportunity for state and local governments to request federal financial assistance or direct federal development.

Air Force:

- **Environmental Impact Analysis Process (Air Force Regulation [AFR] 19-2):** Gives specific procedural requirements for Air Force implementation of NEPA.
- **Pollution Abatement and Environmental Quality (AFR 19-1):** States policies and assigns responsibilities for the development of an organized, integrated, and multidisciplinary environmental protection program to ensure the Air Force, at all levels of command, conducts its activities in a manner that protects and enhances environmental quality.
- **Environmental Pollution Monitoring (AFR 19-7):** Sets up an environmental pollution monitoring program for Air Force installations.
- **Interagency and Intergovernmental Coordination of Land, Facility, and Environmental Plans, Programs, and Projects (AFR 19-9):** Requires intergovernmental and interagency coordination.
- **Conservation and Management of Natural Resources (AFR 126-1):** Provides policies, procedures, and functional responsibilities for managing and conserving soil, water, forest, fish, wildlife, and outdoor recreation resources on Air Force lands.
- **Natural Resources Land Management (AFR 126-2):** Provides for development, improvement, maintenance, and conservation of real property on DOD installations.
- **Air Force Policy on Management of Asbestos at Bases for which the General Services Administration is the Disposal Agent:** Directs bases proposed for closure to conduct surveys and take necessary remedial action.

State:

- Antiquities Code of Texas: Establishes a committee to oversee the preservation of archaeological sites and materials, and establishes a permitting process and enforcement procedures.
- The Environment Policy, Guidelines and Procedures for Processing EISs, Texas: Establish guidelines for review of EISs by the state.
- Texas Clean Air Act of 1967 and Amendments: Establish a state air control board to oversee establishment and enforcement of air quality standards.
- Texas Air Pollution Control Regulations: General Provisions and Regulations I through IX: Define types of air pollution, sources of pollution, and standards for emissions.
- Texas Consolidated Permit Rules: Establish permitting process and conditions for waste disposal activities including hazardous wastes; defines enforcement and violations.
- Texas Water Quality Acts of 1967 and Amendments: Establish state water rights commission to oversee establishment and enforcement of water quality standards.
- Texas Wastewater Treatment Regulations: Define standards for wastewater treatment, collection, transportation, and disposal.
- Texas Solid Waste Disposal Act of 1969 and Amendments: Define responsibilities of state and county agencies for disposal of solid or hazardous wastes.
- Texas Litter Abatement Act of 1981: Identifies prohibited disposal activities and locations, establishes required licenses and permits, and establishes responsibilities for owners of junkyards and automobile graveyards.
- Texas Solid Waste Regulations: Establish permitting and licensing procedures, operational standards for landfills, and compliance and enforcement.
- Texas Industrial Waste Management Regulations: Establish standards for industrial waste, storage, transportation, and disposal; groundwater monitoring; and closure treatments.
- Texas Hazardous Waste Management Regulations: Establish standards for hazardous waste storage, transportation, and disposal, and permitting procedures.

Local:

- No local statutes or regulations pertain to the base closure process.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 INTRODUCTION

The perceived reduction in the Soviet military threat has provided the opportunity to consider scaling down the United States force structure. Growing fiscal constraints on the United States government mandate efficient consolidation of the nation's force structure and the elimination or retirement of weapon systems no longer required to support national policy. As a result of these considerations, in-theater reconnaissance forces, in addition to other weapon systems, have been judged excess to the Department of Defense's (DOD) requirement. The DOD is, therefore, studying the closure of numerous military installations across the United States, including Bergstrom Air Force Base (AFB), Texas.

2.2 DESCRIPTION OF THE PROPOSED ACTION

The proposed action is to close Bergstrom AFB by the end of the first quarter of fiscal year (FY) 1993. Closure of Bergstrom AFB would involve the following unit relocations and inactivations:

- Inactivation of the 67th Tactical Reconnaissance Wing (67th TRW) and retirement of its assets (36 RF-4C aircraft) (Figure 2.2-1).
- Relocation of the 712th Air Support Operations Center Squadron to Fort Hood, Texas.
- Relocation of the following units to Davis-Monthan AFB, Arizona, or to Luke AFB, Arizona, in the event Davis-Monthan AFB is closed:
 - Headquarters 12th Air Force (HQ 12th AF);
 - 12th Tactical Intelligence Squadron;
 - 602nd Tactical Air Control Center Squadron;
 - 4500th School Squadron, Detachment 2 (Tactical Air Command [TAC] Non-Commissioned Officer Academy West);
 - 25th Weather Squadron; and
 - Detachment 12, Tactical Communications Division.
- Relocation of the 1816th Reserve Advisor Squadron, Detachment 6, OL-J, to Patrick AFB, Florida.
- Relocation of the 3622nd Air Force ROTC Squadron (ATC) to Randolph AFB, Texas.
- Relocation of the Civil Air Patrol to Austin, Texas.
- Inactivation of all remaining Bergstrom AFB active duty units.
- Relocation of 15th AF OL-BE (Strategic Air Command [SAC]), 22nd Air Force Numbered Air Force Combat Operations Support (NAFCOS) (SAC), 23rd Air Force NAFCOS (Military Airlift Command [MAC]), and 695th Electronic Security Command (ESC) WG OL-TB to unspecified location(s).

With the proposed action, the following units would remain in place:

- Headquarters 10th Air Force (HQ 10th AF);
- 924th Tactical Fighter Group (TFG) and their Air Force Reserve (AFRES) support units; and
- Regional Corrosion Control Facility.

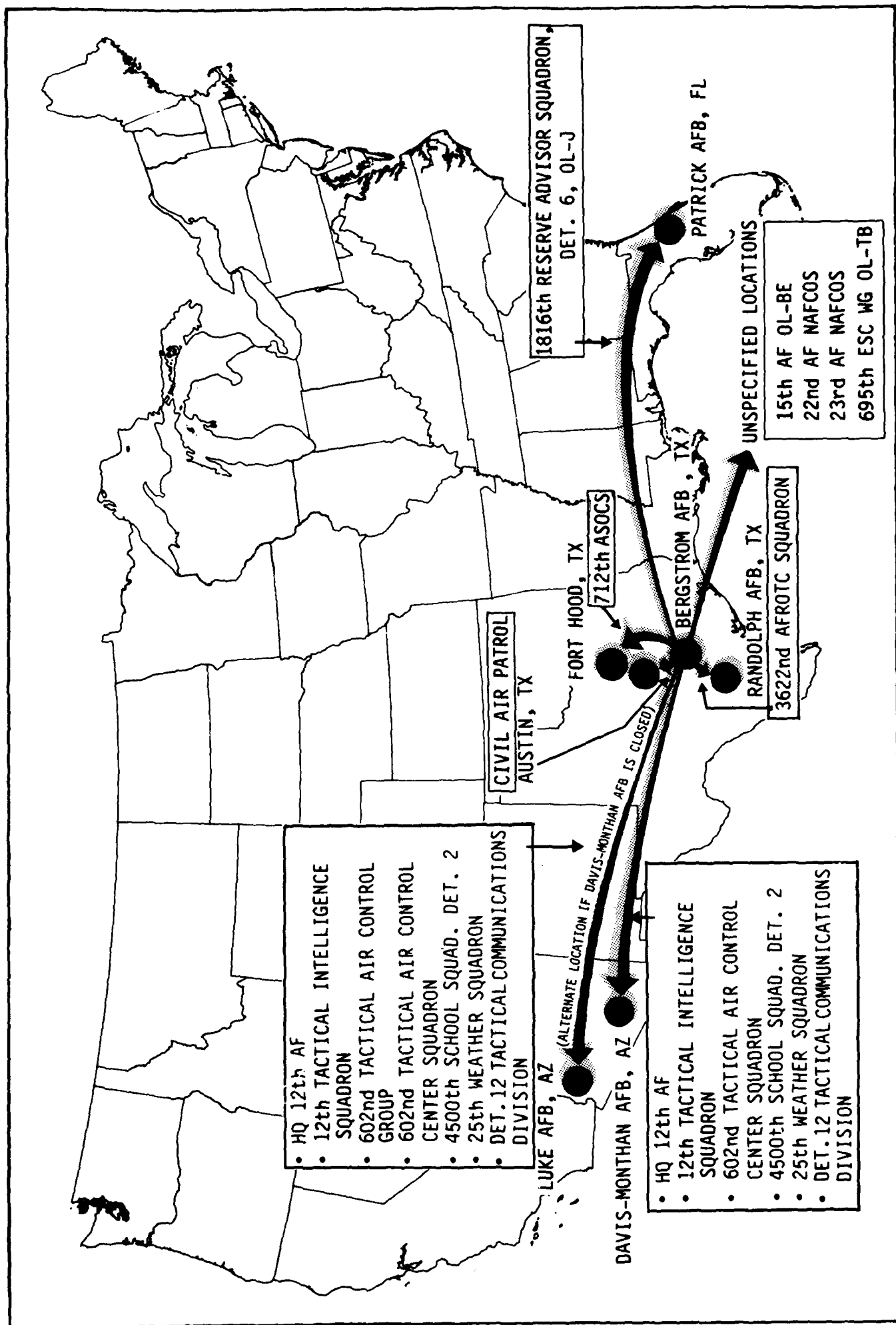


FIGURE 2.2-1 RELOCATION OR INACTIVATION OF UNITS FROM BERGSTROM AFB, TEXAS

These organizations would continue to operate at Bergstrom AFB unless the developed reuse plan would preclude their operation from the airfield.

The 67th TRW consists of two Tactical Reconnaissance Squadrons (TRSs), the 12th TRS and the 91st TRS, with 18 RF-4Cs each. The primary mission of the wing is to maintain a combat-ready air reconnaissance force. Other organizations within the wing include the 67th Air Base Operability Squadron, 67th Aircraft Generation Squadron, 67th Civil Engineering Squadron, 67th Component Repair Squadron, 67th Combat Support Group, 67th Comptroller Squadron, 67th Equipment Maintenance Squadron, 67th Medical Group, 67th Mission Support Squadron, 67th Security Police Squadron, 67th Service Squadron, 67th Supply Squadron, and 67th Transportation Squadron. The 67th TRW with all its component organizations would be inactivated as part of the proposed action.

Another major TAC organization at Bergstrom AFB is the HQ 12th AF. The HQ 12th AF is responsible for all TAC reconnaissance and fighter operations based west of the Mississippi River. The 12th AF's mission is to command, administer, and supervise training of assigned and attached forces, and to ensure the operational readiness of designated TAC-gained units of the Air Reserve Component prior to mobilization. The 12th AF would be relocated to Davis-Monthan AFB, Arizona, or Luke AFB, Arizona.

Bergstrom AFB is also home for the 602nd Tactical Air Control Group (602nd TAIRCG), comprising the 602nd Tactical Air Control Center Squadron, the 712th Air Support Operations Center Squadron, and the 12th Tactical Intelligence Squadron. When deployed, the group and its units are the main component of the Tactical Air Control System and directly support the 12th AF Commander in planning, directing, and managing all tactical operations in a theater or contingency area. The three squadrons would be relocated. The 602nd TAIRCG would be inactivated; its intermediate command function would no longer be needed after collocation of the squadrons with the parent wing (602nd Tactical Air Control Wing) at Davis-Monthan AFB. In the event of an alternative relocation to Luke AFB, the 602nd TAIRCG would relocate with its subordinate squadrons.

The other TAC organization at Bergstrom AFB is the 4500th School Squadron, Detachment 2. The school is better known as the TAC Non-Commissioned Officer Academy West. Its mission is to conduct management and leadership training for E-6 selectees, E-6s, and E-7s. This organization would also be relocated to Davis-Monthan AFB or Luke AFB.

Other tenant organizations at Bergstrom AFB include Detachment 2, 17th MIC (Army); Detachment 504, Tactical Audit Office; Detachment 423, 3752nd Field Training Squadron, Detachment 802, Air Force Commissary Service; the 1882nd Communications Squadron; and Detachment 1001, Air Force Office of Special Investigations. These units would be inactivated as a result of the proposed action, but actual dispositions are yet to be determined by their owning commands.

The 3622nd Air Force ROTC Squadron would relocate to Randolph AFB, Texas; the 1816th Reserve Advisor Squadron, Detachment 6, OL-J to Patrick AFB, Florida; the Tactical Command Division and 25th Weather Squadron to Davis-Monthan AFB, Arizona, or Luke AFB, Arizona; and the Civil Air Patrol to another location within the Austin, Texas, area.

With the proposed action, the following units of the AFRES would remain in place: HQ 10th AF and 10th Civil Engineering Flight, the 924th TFG and its component organizations, and the 2610th Reserve Recruiting Squadron.

The 10th AF is the headquarters of flying and nonflying AFRES units located throughout the United States. Its mission is to ensure the units under its control are operationally ready in the event of mobilization or if they are needed in support of civil defense and natural disaster civil relief. If mobilized, these units support seven different major commands.

The 924th TFG has only one flying squadron, the 704th Tactical Fighter Squadron, with 18 F-4E aircraft. The squadron will transition to F-16A aircraft in the fourth quarter of FY 1991. Its mission is to maintain readiness for possible mobilization in times of national emergency. The aircraft perform counterair, interdiction, and close air support missions. These 18 F-16A would remain as part of the AFRES presence after base closure. Other organizations within the 924th TFG include the 924th Civil Engineering Squadron, 924th Consolidated Maintenance Squadron, 924th Communications Squadron, 924th Combat Support Squadron, 924th Security Police Flight, and 924th Tactical Hospital.

The Air Force also plans to leave the Regional Corrosion Control Facility in operation at Bergstrom AFB. All these organizations would continue to operate at Bergstrom AFB unless the future development of the base would preclude their operation from the airfield.

Manpower Drawdown Schedule. At the end of FY 1989, Bergstrom AFB employed a total of 6,125 military personnel (4,780 active-duty Air Force plus 1,345 AFRES), 1,071 appropriated fund civilian personnel, and 843 other civilian personnel. As a result of fiscal and other constraints, which are independent of base closure, personnel authorizations will be reduced over the next several years. By the second quarter of FY 1992, personnel authorizations will be reduced to 5,050 military and 920 civilian personnel. The actual number of personnel will probably be slightly lower than the authorizations. If a decision is made to close the base, personnel reductions will begin in the third quarter of FY 1992, and continue according to the schedule illustrated in Figure 2.2-2. At the end of the drawdown, about 1,400 AFRES and Regional Corrosion Control Facility-related authorizations would remain, in addition to the caretaker force.

Davis-Monthan AFB, Arizona, is being assessed as an alternative to the proposed closure of Myrtle Beach AFB, South Carolina. If that assessment were to result in a decision to close Davis-Monthan AFB, the Air Force would propose to relocate the following units to Luke AFB, Arizona:

- HQ 12th AF;
- 12th Tactical Intelligence Squadron;
- 602nd TAIRCG;
- 602nd Tactical Air Control Center Squadron;
- 4500th School Squadron, Detachment 2;
- 25th Weather Squadron; and
- Detachment 12, Tactical Command Division.

2.3 NO ACTION ALTERNATIVE

With the no action alternative, Bergstrom AFB, Texas, would remain open. Units currently assigned to the base would not be inactivated or relocated. The base structure would be maintained at its current level. The no action alternative would not alleviate growing fiscal constraints nor allow for the necessary streamlining of current or programmed force structure.

2.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

Two alternatives were investigated but eliminated from further consideration. These are:

The Retirement and/or Relocation of RF-4Cs From, and Closure of, an Alternate Base Either Overseas or in the Continental United States. Across-the-board drawdowns are proposed overseas as part of the Conventional Forces in Europe negotiations. These reductions will be in addition to, and not instead of, any stateside drawdowns. In the continental United States, Bergstrom AFB is the only base with an active duty manned reconnaissance mission and RF-4C aircraft. Therefore, closure of an alternate base is not an option.

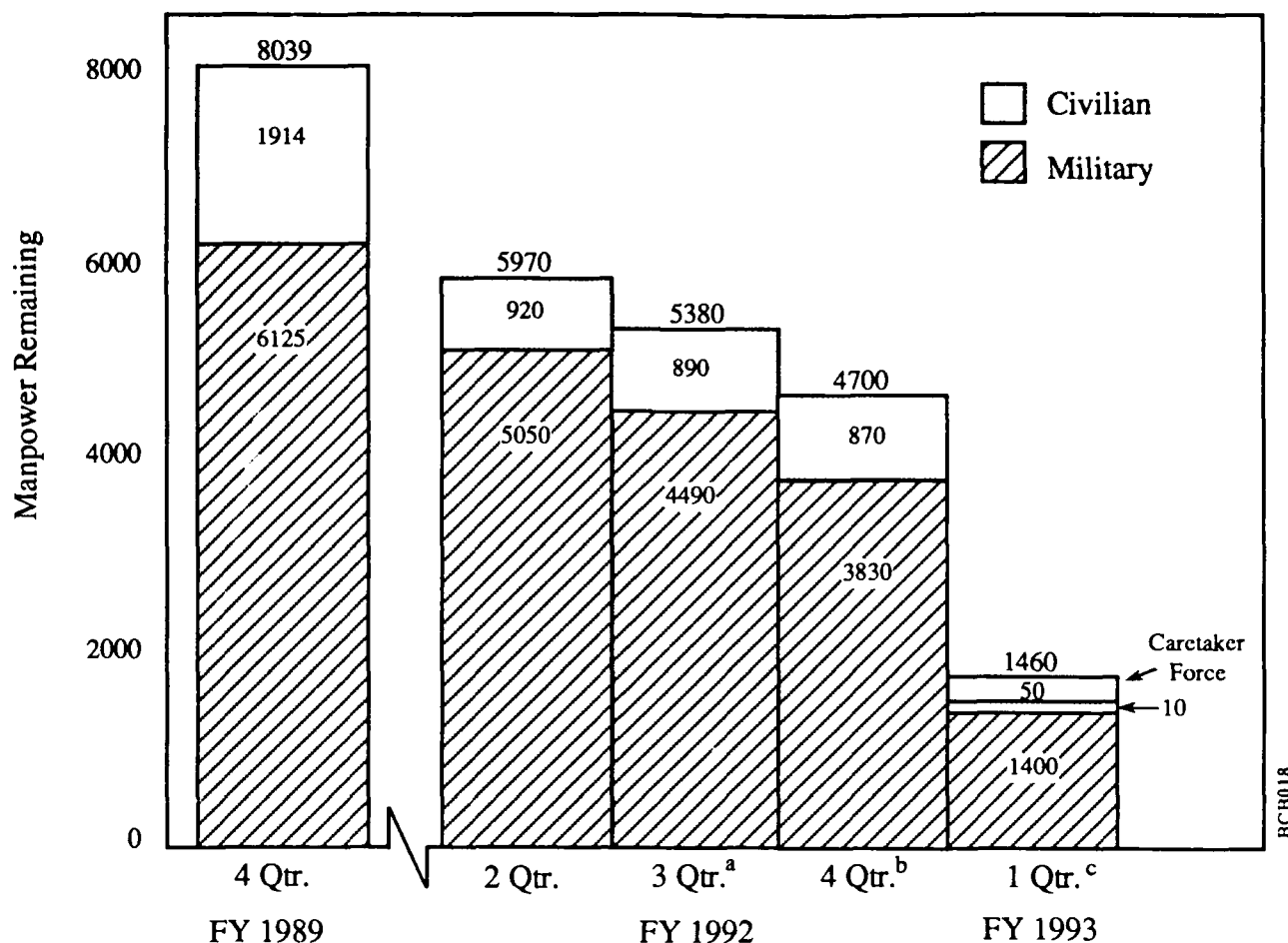


FIGURE 2.2-2 MANPOWER DRAWDOWN SCHEDULE FOR THE PROPOSED CLOSURE OF BERGSTROM AFB, TEXAS^d

Notes:

- a. Inactivate: 12 TRS; Wright R&D, OL-AM
Relocate: 3622 AFROTC SQ; Civil Air Patrol
- b. Inactivate: 91 TRS; 3752 FTD, DET 423; 67 AGS; 67 CRS; 67 EMS; DET 2, 17 MIC
Relocate: 712 ASOCS; 1816 RAS, DET 6, OL-J
- c. Inactivate: 67 TRW; AFCOMS, DET 802; 1882 COMM SQ; 25 WS, DET 10; AFOSI, DET 1001; DET 504, AFAA; AF LEGAL SVC CTR; 67 SVCS; 67 TRANS; 602 TAIRCG; 67 ABOS; 67 CES; 67 CSG; 67 CPRS; 67 MED GP; 67 MSS; 67 SPS; 67 SUPS; 1 CSG OLAF; HQ 12 AF; 4500 SCH SQ, DET 2; 12 TIS; 602 TACCS; DET 12, TAC COM DIV; 25 WS; 15 AF, OL-BE; 22 AF, NAFCOS (SAC); 23 AF, NAFCOS (MAC); 695 ESC WG, OL-TB
- d. Manpower authorizations represent end of quarter projections; caretaker force is estimated at 50 personnel.

Retirement and/or Relocation of RF-4Cs From Bergstrom AFB and Backfilling With Another Mission. Because of budget constraints and the resultant force structure reductions, the aircraft and dollars necessary to support a replacement mission at Bergstrom AFB are not expected to be available. This, in addition to the military construction requirements for a new mission, precludes this alternative.

2.5 COMPARISON OF ENVIRONMENTAL IMPACTS

2.5.1 Closure Actions

A summary of changes to the local community, changes in hazardous materials/waste management practices, and impacts to the natural environment is provided in the Summary. In addition, Table 2.5-1 provides a summary of potential environmental impacts associated with closure actions at Bergstrom AFB. Detailed discussions are provided in Chapter 4.0, Environmental Impacts.

2.5.2 No Action

The no action alternative would not substantially affect the surrounding community based on existing base operational and environmental conditions. The Austin area population would continue its current trend. Land use and aesthetics at Bergstrom AFB and its immediate vicinity would remain unchanged, at least for the near future. Transportation and utility patterns and trends would also remain unchanged. Local and regional planning documents for utilities, transportation, and other services and facilities, based on existing and projected future conditions (which include continuation of Bergstrom AFB), would continue to be valid and should adequately address potential growth-related impacts. Since 1974, the City of Austin has been exploring viable alternatives for airport facilities to meet future airport capacity needs for the Austin metropolitan area, to eliminate airspace conflicts with Bergstrom AFB, to stimulate additional industry and business for the area, and to provide for the development of a safe, efficient, and environmentally compatible commercial service airport to serve Austin and other surrounding communities in the metropolitan area. In 1988, the Federal Aviation Administration (FAA) determined the Manor site as the best potential airport location. Environmental documentation was completed by the FAA in 1990. With the announcement of the proposed closure of Bergstrom AFB in January 1990, the Austin City Council put on hold the acquisition of land at the Manor site and conducted a feasibility study to determine if Bergstrom AFB could be used as a civilian airport. In April 1990, the study concluded that Bergstrom AFB would be a viable alternative to the Manor site.

If Bergstrom AFB remains active, the City of Austin is expected to proceed with the land acquisition and development of airport facilities at the Manor site. However, until the site is developed, airspace conflicts between Bergstrom AFB and Robert Mueller Airport will continue. Military Operating Areas would remain under the control and management of Bergstrom AFB.

With the no action alternative, potential contamination from the use, storage, and disposal of hazardous materials/wastes at Bergstrom AFB would continue to be minimized by adhering to approved plans and applicable regulations. Hazardous materials would continue to be used at Bergstrom AFB in daily operational activities. The underground storage tanks would continue to be operated and maintained according to the Underground Storage Tank Management Plan and federal and state regulations. Hazardous waste would also be generated, collected, stored, and disposed of in accordance with the *Hazardous Waste Management Plan 19-1*, which is designed to comply with federal, state, and local regulations. Remediation of contaminated Installation Restoration Program sites will continue in accordance with approved plans.

The no action alternative would not substantially affect geology, soils, air quality, water resources, or the noise environment in the area. However, substantial reductions in air emissions and noise expected with base closure would not be realized. Any existing disturbance of wildlife by aircraft

Table 2.5-1
Environmental Impacts
Associated With Closure of Bergstrom AFB, Texas

Resource Category	Impacts of Base Closure
Geology and Soils	<ul style="list-style-type: none"> ● No impacts are expected to occur on geologic resources underlying the base. ● Reduced disturbance of soil and a reduction in soil contamination potential from storage and spills of hazardous materials would result in positive impacts.
Water Resources	<ul style="list-style-type: none"> ● Positive impacts on surface and groundwater resources would occur through reduction of the potential risk of contamination from spills and stormwater runoff. Potable water demand onbase would be reduced by 291 million gallons annually, but the impact on the city's water supply would be minimal (less than 1%).
Air Quality	<ul style="list-style-type: none"> ● Air pollution emissions would be significantly reduced (524 tons per year), resulting in a positive impact. The Air Force Reserve units and Regional Corrosion Control Facility would continue operations, but the amount of pollutant emissions from these operations would not adversely affect the regional air quality.
Noise	<ul style="list-style-type: none"> ● Noise from aircraft operations would be significantly reduced, resulting in a positive impact. The Air Force Reserve units would continue operations and therefore continue producing noise, although the area covered by L_{dn} 65 Db noise contour would be significantly smaller. Reductions of about 5,000 vehicles entering or leaving the base would reduce noise along Texas State Highway 71 in the vicinity.
Biological Resources	<ul style="list-style-type: none"> ● Base closure would have a positive impact on wildlife onbase. ● Vegetation would be maintained at a minimal level by the caretaker program.
Cultural and Paleontological Resources	<ul style="list-style-type: none"> ● Potential for disturbance to cultural resources would be reduced with base closure. Impacts would be generally beneficial. ● Two prehistoric sites are potentially eligible for the National Register of Historic Places.

operations and other base activities would continue. The potential for loss or disturbance of natural habitat and some cultural resources by future construction or other base activities would remain.

2.5.3 Relocation Actions

Potential impacts related to the proposed action include those resulting from the relocation of certain units to other receiving bases. Fourteen units from Bergstrom AFB, Texas, are proposed for relocation. These units are destined for Davis-Monthan AFB, Arizona (or Luke AFB, Arizona); Fort Hood, Texas; Randolph AFB, Texas; Patrick AFB, Florida; Austin, Texas; and unspecified locations. Table 2.5-2 presents the Bergstrom AFB units, manpower, and equipment proposed for closure and relocation.

Units relocating to Davis-Monthan AFB, Arizona, or Luke AFB, Arizona, include HQ 12th AF (334 personnel and 500 tons of equipment); 12th Tactical Intelligence Squadron (118 personnel and 180 tons of equipment); 602nd Tactical Air Control Center Squadron (256 personnel and 385 tons of equipment); 4500th School Squadron, Detachment 2 (17 personnel and 26 tons of equipment); 25th Weather Squadron (11 personnel and 17 tons of equipment); Detachment 12, Tactical Communications Division (25 personnel and 38 tons of equipment), and the all these units would relocate in the first quarter of FY 1993. If Luke AFB, Arizona, is selected for relocation, the 602nd Tactical Air Control Group (6 personnel and 9 tons of equipment) would also move to this location.

Personnel increases at Davis-Monthan AFB or Luke AFB, Arizona, would result in greater utility demands for water, wastewater treatment, solid waste disposal, and energy (electrical and natural gas); however, these demands are not expected to substantially affect existing utility systems at either base. Furthermore, no unusual volumes or types of hazardous waste are likely to be involved with the operations. Therefore, the potential for soil and water contamination is very low.

Transportation of personnel, equipment, and material to either destination would result in short-term air emission increases from the vehicles and possible congestion as a result of the movements. Long-term air emissions would also increase on and around the base. However, for either case, levels of air emissions associated with the relocation are not expected to affect attainment status of the region nor violate state or National Ambient Air Quality Standards for criteria pollutants (carbon monoxide, nitrogen oxides, sulfur oxides, particulates, and volatile organic compounds). Air Force actions would be in compliance with pertinent federal air quality regulations. Impacts on noise as a result of increased vehicular traffic are expected to be minimal.

Impacts to biological and cultural resources resulting from unit relocation to either base are not expected. Construction activities (one administrative facility) associated with the beddown of these units may result in disturbances to biological resources in the immediate area. Such disturbances would be minimized by applying standard construction practices and complying with governing regulations and policies of federal, state, and local agencies.

The potential for generating cumulative impacts at Luke AFB, Arizona, exists if both the 602nd Tactical Air Control Wing mission from Davis-Monthan AFB and the Bergstrom AFB units relocate there.

The last 8 of the 14 units would relocate to five other bases or areas. The 712th Air Support Operations Center (104 personnel and 156 tons of equipment) would relocate to Fort Hood, Texas, in the fourth quarter of FY 1992. The 3622nd Air Force ROTC Squadron (6 personnel and 9 tons of equipment) would relocate to Randolph AFB, Texas, in the third quarter of FY 1992. The 1816th Reserve Advisor Squadron, Detachment 6 (5 personnel and 8 tons of equipment) would relocate to Patrick AFB, Florida, in the fourth quarter of FY 1992. The Civil Air Patrol (2 personnel and 3 tons of equipment) would relocate to Austin, Texas, in the third quarter of FY 1992. The 15th Air Force OL-BE (SAC), 22nd Air Force NAFCOS (SAC), 23rd Air Force NAFCOS (MAC), and 695th ESC

Table 2.5-2

Unit Relocations Organized by Receiving Locations

Receiving Location	Relocated From	No. of Aircraft	No. of Personnel	Equipment	Sorties/Yr.
<u>Fort Hood, TX</u>					
712th Air Support Operation Center Squadron	Bergstrom AFB, Texas	--	13 O 91 E 0 C	156 tons	--
<u>Davis-Monthan AFB, AZ or Luke AFB, AZ</u>					
Headquarters 12th AF	Bergstrom AFB, Texas	--	183 O 117 E 34 C	501 tons	--
12th Tactical Intelligence Squadron	Bergstrom AFB, Texas	--	36 O 82 E 0 C	177 tons	--
602nd Tactical Air Control Center Squadron	Bergstrom AFB, Texas	--	38 O 218 E 0 C	384 tons	--
4500th School Squadron Detachment 2	Bergstrom AFB, Texas	--	0 O 17 E 0 C	26 tons 70 vehicles	--
25th Weather Squadron	Bergstrom AFB, Texas	--	5 O 5 E 1 C	17 tons	--
Detachment 12 Tactical Communications Division	Bergstrom AFB, Texas	--	10 O 13 E 2 C	38 tons	--
602nd Tactical Air Control Group (to Luke AFB only)	Bergstrom AFB, Texas	--	2 O 4 E 0 C	9 tons	--
<u>Patrick AFB, FL</u>					
1816th Reserve Advisor Squadron, Detachment 6	Bergstrom AFB, Texas	--	0 O 5 E 0 C	8 tons	--
<u>Randolph AFB, TX</u>					
1816th Reserve Advisor Squadron, Detachment 6	Bergstrom AFB, Texas	--	3 O 2 E 1 C	9 tons	--

Table 2.5-2, Continued

Receiving Location	Relocated From	No. of Aircraft	No. of Personnel	Equipment	Sorties/Yr.
<u>Austin, TX</u>					
Civil Air Patrol	Bergstrom AFB, Texas	--	1 O 1 E 0 C	3 tons	--
<u>Unspecified Locations</u>					
15th AF OL-BE (SAC)	Bergstrom AFB, Texas	--	1 O 0 E 0 C	1.5 tons	--
22nd AF NAFCOS (SAC)	Bergstrom AFB, Texas	--	1 O 0 E 0 C	1.5 tons	--
23rd AF NAFCOS (MAC)	Bergstrom AFB, Texas	--	1 O 0 E 0 C	1.5 tons	--
695th ESC WG, OL-TB	Bergstrom AFB, Texas	--	1 O 1 E 0 C	3 tons	--

Note: O= Officers, E= Enlisted, C= Civilians

WG, OL-TB (5 personnel and 8 tons of equipment) would relocate to an unspecified area during the first quarter of FY 1993.

These relocations would involve small numbers of personnel and equipment and are not expected to result in beneficial or adverse impacts to the natural environment (soil, air, water, biological, and cultural resources) at the receiving locations. Temporary adverse impacts may result from the one-time movement of personnel and equipment from Bergstrom AFB, Texas, and their subsequent relocation. For example, air pollution emissions would increase in the short term from the initial transportation of personnel and equipment, and in the long term from the immigration of personnel and vehicles. However, transportation of the assets can be conducted at various times during the deployment quarter and during periods of off-peak traffic volumes to minimize the potential for congestion, and consequently, air pollution.

Significant increases in the generation of solid or hazardous wastes are not expected because of the number of personnel involved and the nature of their activities, which is administrative support. In addition, construction activities are not programmed nor required to support these relocations. Therefore, discrete increases in solid waste generation or cultural and biological disturbances are not anticipated.

The potential for cumulative impacts is minimal. Additional unit relocations to these bases have not been identified nor are they projected.

3.0 AFFECTED ENVIRONMENT

As required by the Council on Environmental Quality regulations for implementing the National Environmental Policy Act (NEPA), the focus of this Environmental Impact Statement (EIS) is on evaluation of environmental impacts of base closure. To provide the context in which impacts to the environment may occur, discussions of installation background and existing baseline conditions in the local communities, including population, land use and aesthetics, transportation, and community and public utility services, are included in this chapter. In addition, current methods of handling and managing hazardous materials and waste are discussed. Finally, existing conditions in the natural environment are described for geology and soils, water resources, air quality, noise, biological resources, and cultural and paleontological resources.

3.1 INSTALLATION BACKGROUND

Bergstrom Air Force Base (AFB) began operations in 1942 as Del Valle Army Air Base. The base was renamed Bergstrom Army Air Field in 1943 at the urging of former President (then Congressman) Lyndon B. Johnson. The airfield was renamed after Captain John August Earl Bergstrom, believed to be the first Austin citizen killed in World War II. Bergstrom AFB was initially the home to troop carrier units, some of which participated in the Berlin Airlift in 1948 and 1949. The base was transferred to the jurisdiction of the Strategic Air Command (SAC) in 1949. In 1957, the base was transferred to the Tactical Air Command (TAC), and in October 1958, the base was once again transferred to SAC when it became the home of the 4130th Strategic Wing.

In 1966 the base again came under the jurisdiction of TAC, and Headquarters 12th Air Force (HQ 12th AF) moved to Bergstrom AFB in the summer of 1968. At that time, the 12th AF was responsible for all TAC reconnaissance, fighter, and airlift operations based west of the Mississippi River.

In July 1971 the 75th Tactical Reconnaissance Wing (TRW) was deactivated and replaced by the 67th TRW, a move which made Bergstrom AFB the only tactical reconnaissance base west of the Mississippi River. Two organizations of the Air Force Reserves (AFRES) moved to Bergstrom AFB in March 1976: the Central AFRES Region Headquarters, redesignated the 10th Air Force (10th AF) (Reserve) in October 1976, and the 924th Tactical Airlift Group, which was later redesignated the 924th Tactical Fighter Group. The 10th AF is the Headquarters for SAC- and TAC-gained AFRES units in the United States; it supervises the training of more than 20,000 Air Force reservists in 18 flying and nonflying units. In 1982, the 45th Tactical Reconnaissance Training Squadron (TRTS) and 62nd TRTS moved to Bergstrom AFB. This gave the 67th TRW two operational flying units (12th Tactical Reconnaissance Squadron [TRS] and the 91st TRS), and two flying training units (45th TRTS and 62nd TRTS). An academic training squadron, the 67th Tactical Training Squadron (TTS), was activated at Bergstrom AFB in 1982. Bergstrom AFB, with its combined training and operational missions, is regarded as the Air Forces' home of tactical reconnaissance. The 45th and 62nd TRTS and 67th TTS were inactivated in the first quarter of fiscal year (FY) 1990.

3.2 LOCAL COMMUNITY

Bergstrom AFB is approximately 7 miles southeast of downtown Austin in Travis County, Texas. Figure 3.2.1-1 presents the location of Bergstrom AFB in regional perspective while Figure 3.2.1-2 shows the installation layout and its immediate vicinity. The base is adjoined on the north and west by the Austin city limits. The community of Del Valle borders the base on the northeast. Several smaller residential communities surround the remainder of the base. The Austin area

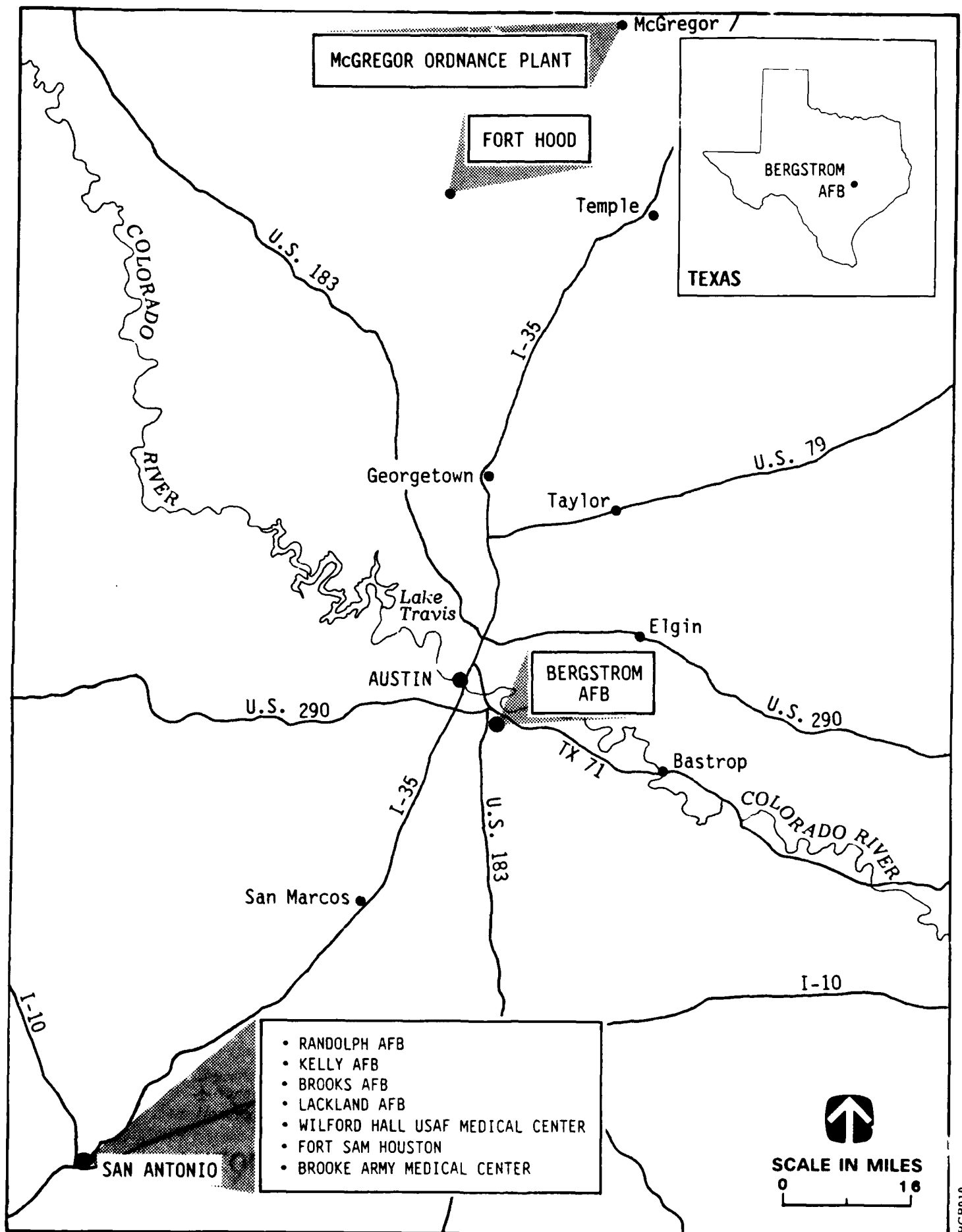


FIGURE 3.2.1-1 REGIONAL SETTING, BERGSTROM AFB, TEXAS

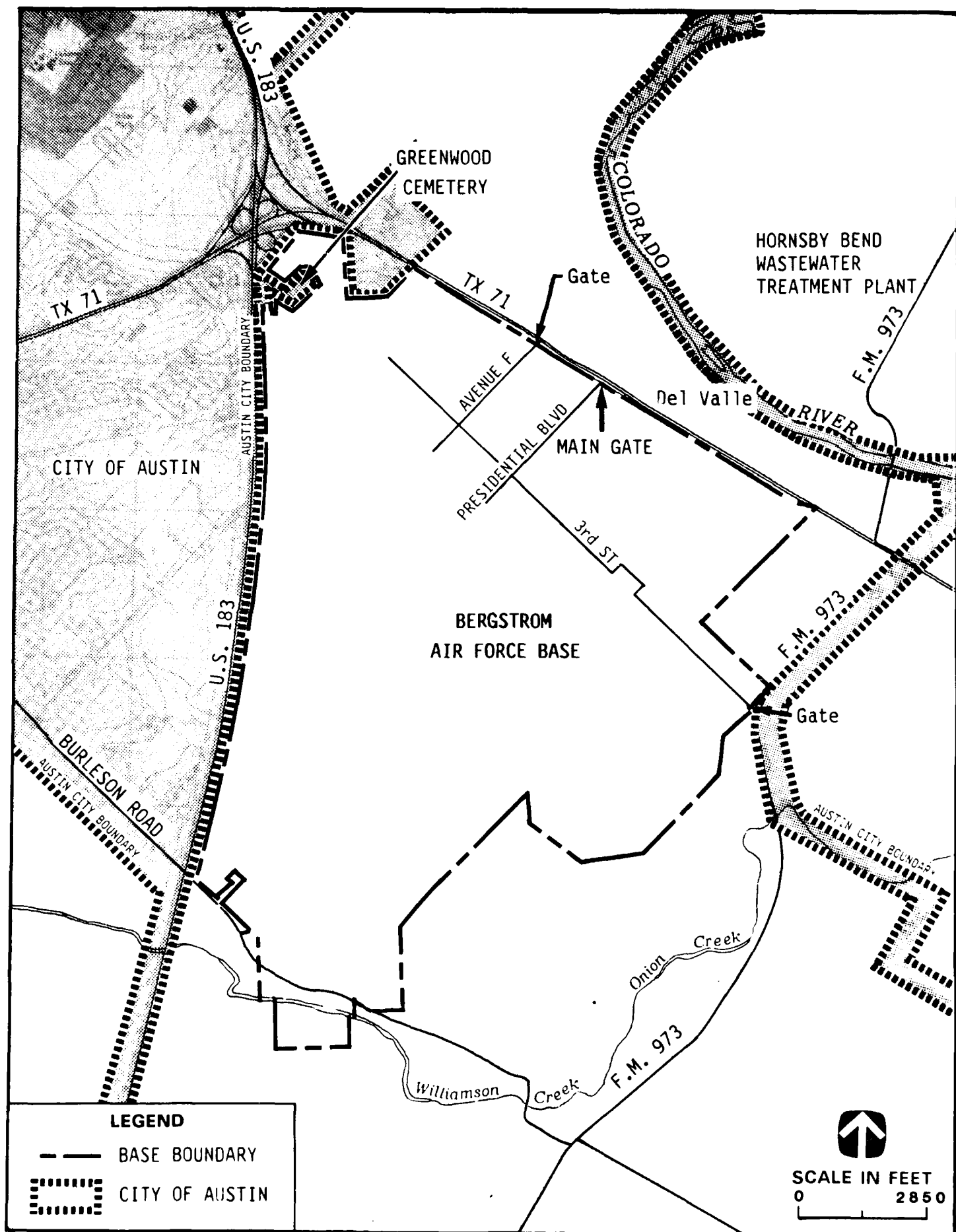


FIGURE 3.2.1-2 BERGSTROM AFB, TEXAS AND VICINITY

economy is diverse with the state and local governments, the University of Texas, an expanding tourist industry, and industries primarily related to electronics being the major employers.

Weather in the area is generally a modified subtropical climate characterized as continental during the winter and marine during the summer. Temperatures range from approximately 50°F in January to 80°F in July. Average annual rainfall is approximately 25 to 27 inches. Northerly winds prevail during most of the winter with southeasterly winds from the Gulf of Mexico prevailing during the summer. Tropical storms occasionally occur in the area bringing strong winds and significant amounts of precipitation over a short period of time. Elevations within the city vary from 400 to 900 feet above sea level.

3.2.1 Community Setting

At the end of FY 1989, Bergstrom AFB employed approximately 8,000 personnel including 4,800 active-duty Air Force, 1,300 AFRES, 1,100 appropriated fund civilians, and 840 civilians in other categories. Approximately 31 percent of the active-duty military personnel lived on the base and 69 percent lived in communities near the base. In addition to direct employment of civilians on the base, spending by the base and base employees provides secondary employment for 3,100 other civilians in the local area.

As a result of fiscal and other constraints, which are independent of closure, personnel authorizations for Bergstrom AFB will be reduced over the next few years. By FY 1992, personnel authorizations will be reduced to 5,050 military (850 officer and 4,200 enlisted) and 920 civilian personnel. The actual numbers of personnel will probably be slightly lower than the authorizations. By FY 1992, secondary employment is projected to be 2,100.

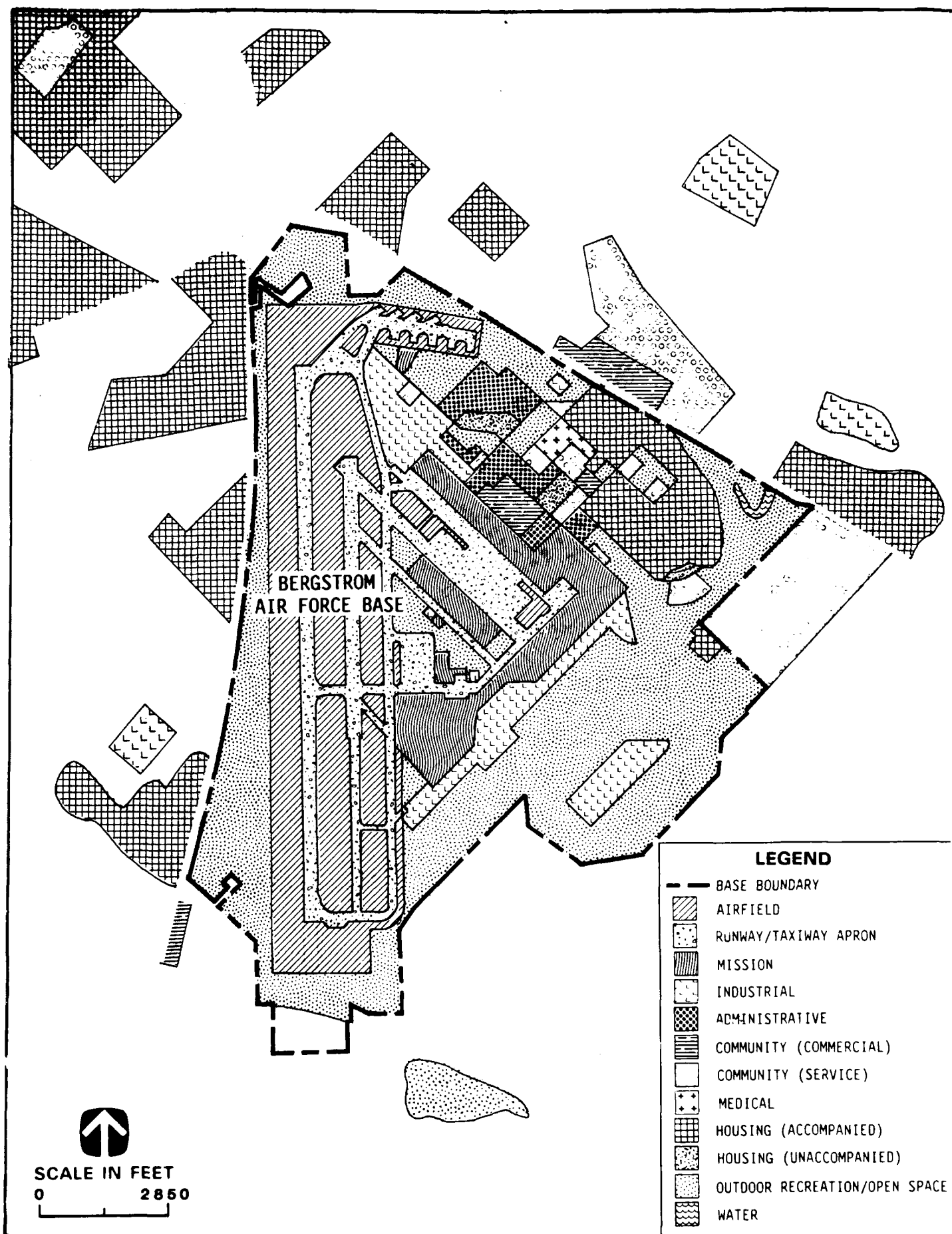
Total civilian employment for Travis County was approximately 382,000 in 1987. This represents a 49 percent increase from the 1980 level of 275,000. The Austin area within Travis County has a diversified employment base with the state and local government sectors as the dominant employers. The University of Texas at Austin and Bergstrom AFB are the second and third largest regional employers, respectively. Employment sectors experiencing growth include "high tech" industrial, services, and agribusiness operations.

The population of the City of Austin in 1980 was 345,900 and is projected to reach 532,000 in 1990. Currently, Bergstrom AFB direct personnel and dependents (15,700) represent about 3.0 percent of the 1990 estimate, with an additional 1.0 percent (6,800) related to indirect activities. The total base-related population of 22,500, therefore, equals about 4.0 percent of the 1990 Austin population. Nearly 19,000 military retirees and their dependents live in the local area.

3.2.2 Land Use and Aesthetics

Land Use. Onbase land uses, listed below, are presented in Figure 3.2.2-1.

- Airfields, runways, taxiways, and aprons;
- Mission;
- Administrative;
- Industrial;
- Community/commercial and services;
- Medical;
- Housing; and
- Recreation and open space.



The 1989-1994 *Bergstrom AFB Land Management Plan* characterizes the installation's land as approximately 25 percent improved, 21 percent semi-improved, 31 percent unimproved grounds, and 22 percent land under facilities.

An additional land use associated with the base is the recreational grounds at Lake Travis. The lake, approximately 40 miles northwest of the base, is leased from the Lower Colorado River Authority (LCRA) as part of Pace Bend County Park. The recreation area is known as "Circle B." In 1968, this property was increased from 64 acres to the current 115 acres. Fifty acres fall below the water line, providing fishing, boating, and water skiing opportunities. These facilities are open to the public and serve community organizations such as scouting troops. In addition to water sports, outdoor recreation facilities available include picnic sites and campgrounds. Relative to the proposed base closure, the lease provides a cancellation clause, and the LCRA may therefore find an alternative leaseholder.

Land use immediately surrounding the base is largely undeveloped and rural. Developments immediately surrounding the base include commercial, industrial, and residential. These developments follow U.S. 183 west of the base and State Highway 71 east of the base. Figure 3.2.2-1 illustrates land uses surrounding the base. Some residential development is also found south of the base along Farm to Market (F.M.) 973. Sand and gravel operations are also found close to the base, north of State Highway 71 and south of the Colorado River. Additional land uses surrounding the base include public parks, the Travis County Detention Center on F.M. 973, and the South Austin Regional Wastewater Treatment Plant.

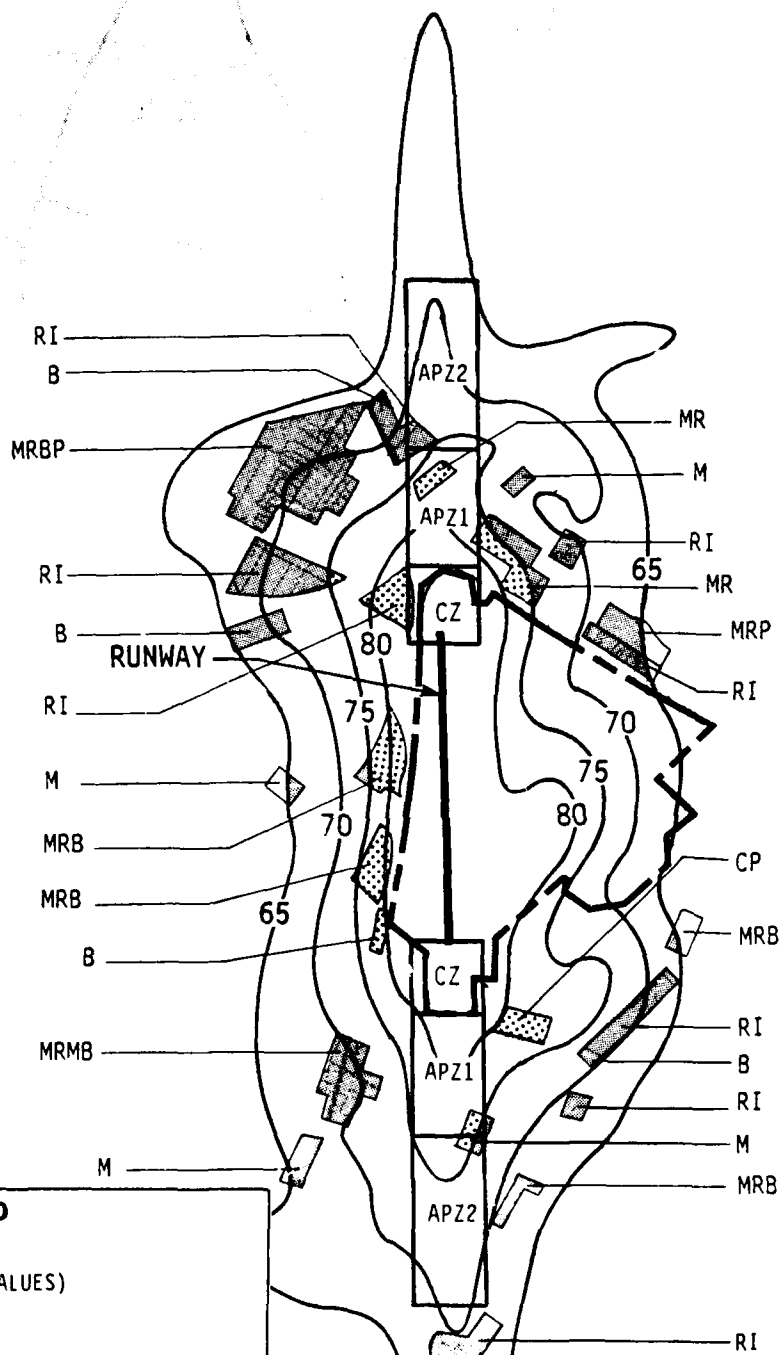
Existing land uses surrounding the base have been highly affected by compatibility with airfield operations. These concerns have been addressed in an Air Installation Compatible Use Zone (AICUZ) study, completed in 1987.

An AICUZ study involves an analysis of land use compatibility around a military airfield in terms of noise and other issues such as physical obstructions to flight, types of human activities, density of houses, and concentration of persons unable to help themselves (i.e., handicapped, elderly, and infants). As a result of an AICUZ study, noise contours and Accident Potential Zones (APZs) are defined, which are used in developing a breakdown of the area surrounding the airfield into categories of recommended land use. This categorization of the land around an airfield is then made available by the Air Force to the civilian authorities with the purpose of promoting zoning and other types of regulations which can effectively control undesirable growth around the airfield.

The delineation of Clear Zones, APZ 1, and APZ 2 (Figure 3.2.2-2) is an integral part of the AICUZ process, and together with the noise contours, define the overall compatibility of land use around the airfield. Given a certain combination of noise level and airfield safety criteria, certain land uses are compatible, conditionally compatible, or incompatible. For example, a day/night sound level (L_{dn}) higher than 75 is incompatible with residential land use. APZ 1 is considered compatible with industrial/manufacturing, open space, recreation, and other uses that do not concentrate people in small areas. APZ 2 is compatible with the same uses as APZ 1 as well as low-density single-family residential, business, and commercial retail uses. Buildings for most nonresidential uses should be limited to one story.

Incompatible land uses are limited around Bergstrom AFB (Figure 3.2.2-2). The residential area southwest of the U.S. 183 and State Highway 71 is incompatible. Residential areas north of the airfield are designated incompatible because of high decibel levels and their location in APZ 1 and APZ 2 zones. There are only two uses that fall into the incompatible designation south of the base: a conservation/preservation area and an industrial use. North and west of the airfield are residential

ROBERT MUELLER
MUNICIPAL AIRPORT



BERGSTROM
AIR FORCE BASE

LEGEND

- BASE BOUNDARY
- 65— NOISE CONTOURS (Ldn VALUES)
- COMPATIBLE
- CONDITIONALLY COMPATIBLE
- INCOMPATIBLE
- B BUSINESS
- CP CONSERVATION/PRESERVATION
- M INDUSTRIAL
- RI SINGLE FAMILY RESIDENTIAL
- MR MIXED SINGLE AND MULTI-FAMILY RESIDENTIAL
- MRB MIXED RESIDENTIAL AND BUSINESS
- MRMB MIXED RESIDENTIAL, BUSINESS, AND INDUSTRIAL
- MRB MIXED RESIDENTIAL AND INDUSTRIAL
- MRBP MIXED RESIDENTIAL, BUSINESS, AND PUBLIC
- MRP MIXED RESIDENTIAL AND PUBLIC



SCALE IN FEET
0 8448

FIGURE 3.2.2-2 LAND USE COMPATIBILITY AROUND BERGSTROM AFB, TEXAS

and mixed use areas that are conditionally compatible. There are not as many conditionally compatible residential uses south of the base, and no incompatible residential uses.

Land use goals for the base emphasize improved consolidation of buildings by function, for efficiency, and compatibility. Proposed capital improvements include upgrading infrastructure (roads and utility systems), increasing the parking supply, improving landscaping, and facilitating traffic flows onbase. For FY 1989, total construction expenditures were \$12.9 million. Capital improvements are identified in the *Bergstrom 2000* report, where projects both completed and underway have been identified. The capital improvements projects currently underway will be completed. Pending construction projects have been put on hold until the decision on whether or not to close the base has been made.

The most recent comprehensive planning effort by the City of Austin was initiated in 1986. The effort resulted in a series of planning documents covering land use, the environment, economic development, and housing, under the title the *Austin Plan*. The plan is in the review phase and is expected to be approved this year (1990).

Bergstrom AFB lies within Austin's extraterritorial jurisdiction (ETJ). Zoning for land surrounding the base is shown in Figure 3.2.2-3. The base is considered Unzoned or exempt from the Austin Zoning Ordinance. The ETJ extends 5 miles from the full purpose corporation limits, and besides zoning, the only other land use regulation affecting the ETJ is the subdivision authority.

The primary zoning within the ETJ and immediately surrounding the western, southern, and eastern boundaries of the base is considered Development Reserve. This category is intended to prevent premature land use/development where adequate public services and facilities are unavailable. This corresponds to the largely undeveloped nature of the area and the incompatibility of many land uses with the base. The northern end of the main runway includes land previously zoned Commercial, Residential, and Small Business, as well as a cemetery. Light industrial zones are also west of the base, with access along U.S. 183.

All areas falling outside the city's jurisdiction are governed by Travis County, and there is no county zoning dictating land use in these areas.

Aesthetics. The Austin area is spread across the Balcones Escarpment, where the rugged, dissected topography of the Edwards Plateau meets the gentler topography of the Gulf Coastal Plain. Bergstrom AFB, in particular, is located in the relatively flat Colorado River Terraces region, slightly elevated above the river. Much of the area in and around the base is dominated by grassland and agricultural land with scattered trees and shrubs and woodlands along drainageways. Unobstructed views of the base are afforded from Texas State Highway 71, U.S. 183, and limited adjacent industrial and residential development, although the low-level structures and flat topography of the base do not impair any scenic vistas. Some long distance views of the base may be afforded from the hills to the west and south of the base.

The Architectural Compatibility Guidelines for the base state that "clean, massive, handsome buildings without overly busy detailing are the objective." The style best describing the buildings onbase is contemporary/modern. The emphasis of these guidelines is to promote compatibility of styles and functions, durability of material, and efficiency.

Five basic functional areas are considered in the guidelines: administrative/community services/dormitories, operation/maintenance, support/industrial, mobility, and family housing. At the base, structural form follows function.

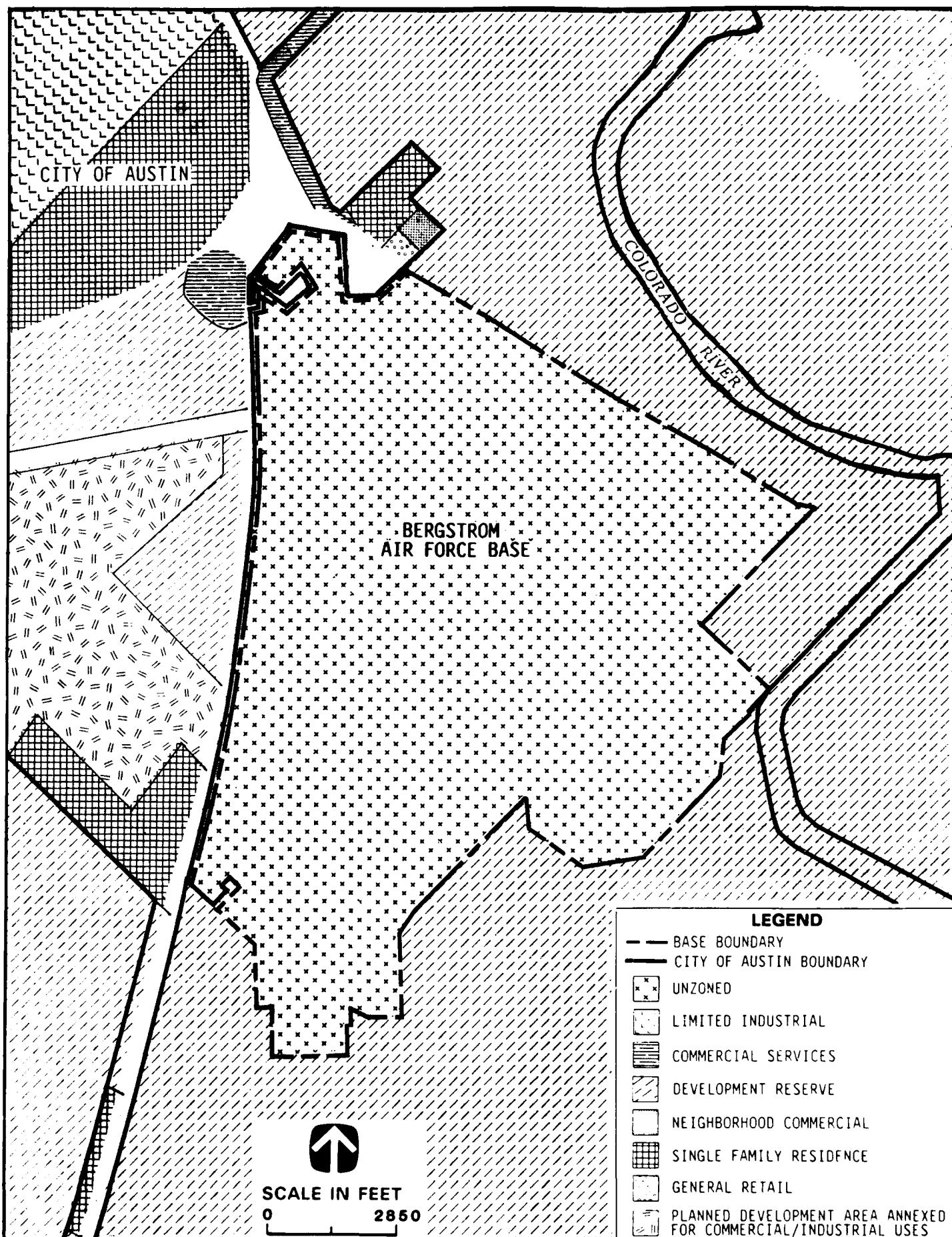


FIGURE 3.2.2-3 ZONING IN THE VICINITY OF BERGSTROM AFB, TEXAS

The structural detailing and materials of base buildings are modest. Fascia are composed of brick and precast on permanent buildings. Industrial and temporary buildings are generally of pre-engineered metal. Paint used on these structures is "Bergstrom Nomad Tan" with dark brown graphics and trim. The exceptions to this color scheme are the military family housing structures, which more closely resemble an offbase residential subdivision in style and layout.

Landscaping considerations at the base emphasize minimal maintenance and climate compatibility. The *Land Management Plan (1989-1994)*, prepared by the Base Civil Engineers, details the base's land resource maintenance programs. The goals of the plan work toward enhancing the natural and built environment, protecting natural resources, and maintaining compatibility with base missions.

3.2.3 Transportation

3.2.3.1 Transportation Systems

Major roads that pass through the Austin metropolitan area include Interstate 35, Texas State Highway 71, and U.S. 183. Two of the major roadways provide direct access to Bergstrom AFB and would reflect any reduction in travel volume associated with the relocation of workforce or closure of Bergstrom AFB. These roadways are U.S. 183 and State Highway 71 (see Figure 3.2.1-2).

The base has two active gates. The main gate is on State Highway 71 at Presidential Boulevard. The second gate is approximately 1,600 feet west of the main gate also on State Highway 71. The second gate enters the base at Avenue F. A third gate is on 3rd Street on the southeast side of the base and is used infrequently.

Two rail freight companies provide access to the Austin market. They are the Missouri Pacific and the Austin and Northwestern railroads. A portion of the Missouri Pacific right-of-way terminates at the western boundary of the base. The Austin and Northwestern right-of-way travels through Austin and passes 3 miles north of Bergstrom AFB. Amtrak does not provide passenger service to Austin.

The Robert Mueller Municipal Airport is approximately 7 miles north of the base and is the closest commercial aviation terminal. It is the region's primary commercial airport, with more than 230,000 operations annually including commercial and general aviation operations. The airport has 10 resident airlines with 105 flights departing daily. According to Federal Aviation Administration (FAA) standards, Mueller Municipal is classified as a small hub airport. The airport can be reached from the base via the most direct major routes of State Highway 71, U.S. 183, and Airport Boulevard/Loop 111.

3.2.3.2 Ground Traffic

Bergstrom AFB is approximately 7 miles southeast of Austin's central business district. On average, the journey-to-work travel time for the Austin Metropolitan Statistical Area is about 45 minutes. Traffic flow conditions overall in the Austin region are considered to have reasonably free-flow operations with slight impacts on maneuverability during peak periods.

U.S. 183 has a segment with a bidirectional average daily traffic (ADT) volume of 42,000 trips north of Bergstrom AFB; south of the base the ADT drops off to about 19,000 trips (Table 3.2.3-1). The level of service (LOS) ranges from B to A in these locations, respectively. The segment that provides the least desirable LOS is the Montopolis Bridge segment with approximately 57,000 trips and an LOS of F. The expected capacity is 46,500 vehicles per day. State Highway 71 has 48,000 trips east of

Table 3.2.3-1

Existing Level of Service on Roadways
in the Vicinity of Bergstrom AFB

Roadway	Location	1990 ADT Volume (Estimated)	1990 Capacity (ADT)	V/C Ratio	LOS
U.S. 183	South of State Highway 71	18,661	46,500	0.40	A
	South of Thompson Street	41,768	69,750	0.60	B
	East of Airport Boulevard	28,114	46,500	0.60	B
	Montopolis Bridge	56,992	46,500	1.23	F
State Highway 71	East of U.S. 183	51,857	46,500	1.12	F
	East of Interstate 35	48,473	50,000	0.97	E
	West of Interstate 35	52,302	49,500	1.06	F

Notes:

ADT = Average daily traffic

V/C Ratio = volume-to-capacity ratio

LOS = Level of service -

A = Free-flow operations: high average speeds and unimpeded maneuverability (V/C ratio <0.40).

B = Reasonably free-flow operations: above average speeds and slight impacts on maneuverability (V/C ratio 0.41 - 0.55).

C = Stable operations, typically meets design standards: some speed restrictions as a result of congestion and noticeably restricted freedom to maneuver (V/C ratio 0.56 - 0.75).

D = Borders on unstable flow: speeds reduced by congestion and severely limited freedom to maneuver (V/C ratio 0.76 - 0.90).

E = Extremely unstable flow: virtually no usable gaps in the traffic stream to maneuver from one lane to another without causing disruption to traffic flow (V/C ratio 0.91 - 1.05).

F = Forced or breakdown flow: intermittent traffic stoppage in a lane and queues behind breakdown points (V/C ratio >1.06).

Interstate 35 and west of the base. However, the segment of State Highway 71 east of U.S. 183 has nearly 52,000 trips. This volume also exceeds capacity and performs at LOS F. These two locations represent road segments that carry large numbers of vehicle trips to and from the base.

Peak hour traffic volume through the base's two gates on Presidential Boulevard and F Avenue is approximately 700 vehicles each in the morning peak hour and about 450 vehicles each in the afternoon hours. The base does not have any traffic problems.

3.2.3.3 Air Traffic

Military air traffic generated by Bergstrom AFB averages 270 operations per day. Ninety percent of these operations are jet fighter aircraft onbase, with only 10 percent being transient military aircraft.

Airspace at the base is constrained by the airfield's proximity to Robert Mueller Airport, which creates overlapping Air Traffic Control Zones as well as encroachment from heavily populated areas northwest of the base. Operations are coordinated with the FAA, and flight paths are controlled to minimize conflicts with civilian aircraft operations in the Austin area. Flight corridors have been selected to minimize community disturbance.

There are 13 airports within the Austin Approach Control Area--12 civil airports and Bergstrom AFB (Figure 3.2.3-1). Seven of the airports--Mueller, Austin Executive, Lakeway, Georgetown, Lago Vista Bar-K, San Marcos, and Bergstrom AFB--have published instrument approach procedures. Mueller, San Marcos, and Bergstrom AFB each have at least one precision landing aid (ILS or PAR) and the remainder have nonprecision navigation aids. The latter operate primarily under visual flight rules (VFR), although departures may be made during inclement weather conditions.

Approach control and airport traffic control facilities include the Austin Approach Control Facility at Robert Mueller Airport and Airport Traffic Control Towers at Robert Mueller Airport and Bergstrom AFB.

The Austin airspace can be characterized as complex because of the proximity of Bergstrom AFB to Robert Mueller Airport and the respective runway orientations of those two facilities. Austin Approach Control has jurisdiction of the airspace, as stated in a letter of agreement with Houston Air Route Traffic Control Center. An Airport Radar Service Area (ARSA) has been established at Robert Mueller Airport to provide radar vectoring and sequencing for all VFR and instrument flight rule (IFR) aircraft landing within, taking off from, or overflying the airspace.

There are five Military Operating Areas (MOAs) northwest of the Austin area. The MOAs are blocks of airspace reserved by the FAA for military aircraft training purposes. The majority of air traffic from Bergstrom AFB is to/from these MOAs, through the Austin ARSA. The MOAs also affect IFR traffic into and out of the Austin area.

Bergstrom AFB is responsible for scheduling the use of three of these MOAs (Brady High, Brady Low, and Texon) and associated military training routes and air refueling airspace.

Air Traffic Safety. Military aircraft from the base use steeper approaches and higher pattern altitudes. Landing aircraft approach the airfield from the south whenever weather conditions permit in order to minimize air traffic and noise intrusion to the developed areas north of the base.

The majority of base traffic is to and from the MOAs northwest of Austin. This MOA traffic and traffic for Robert Mueller Airport traverse common airspace, with Bergstrom AFB departures cleared

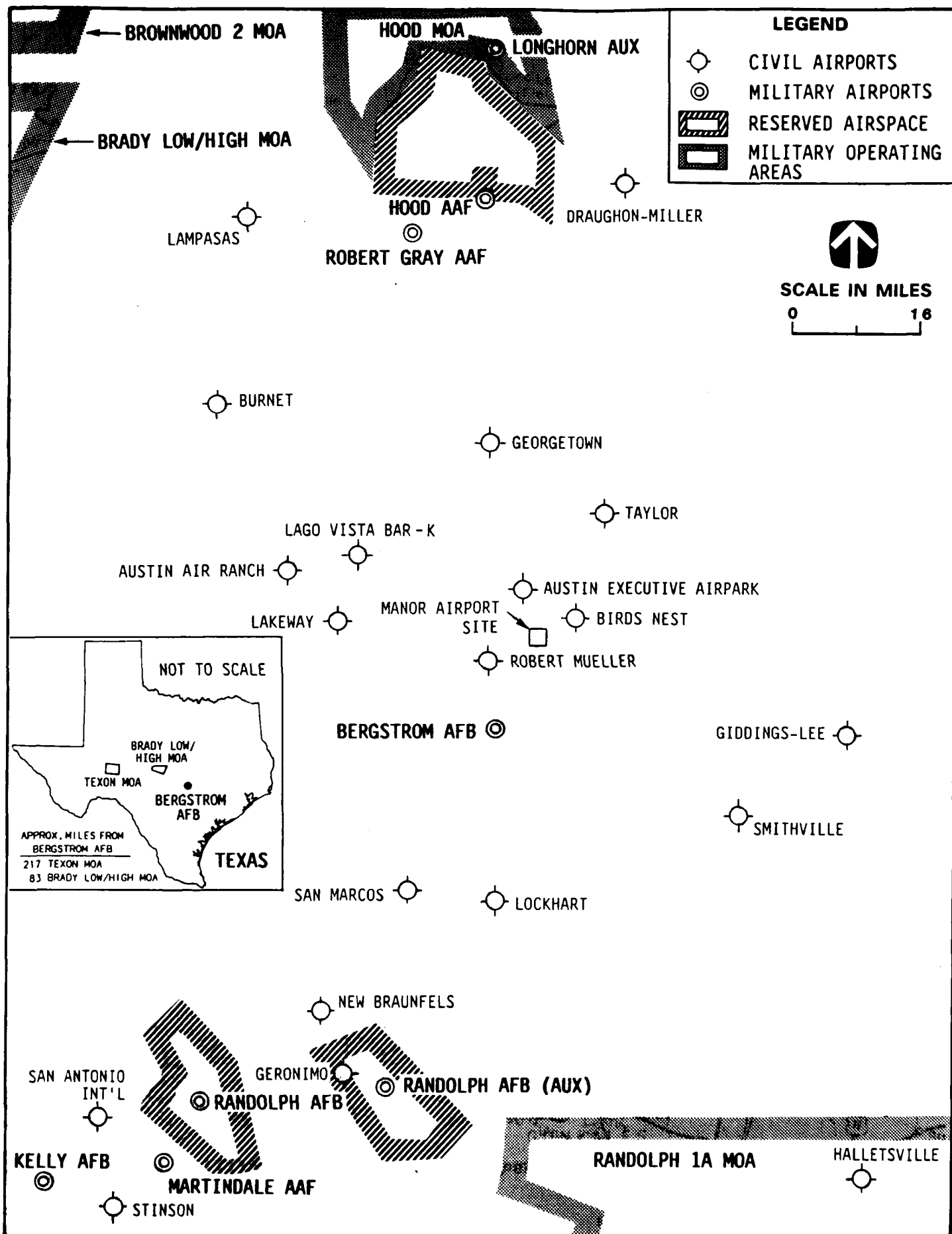


FIGURE 3.2.3-1 AIRPORTS AND AIRSPACE SURROUNDING BERGSTROM AFB, TEXAS

to 4,000 feet and Mueller inbound traffic held at 5,000 feet until they are clear of each other. Commercial airliners, scheduled commuters, and all types of general fixed-wing and rotorcraft comprise the civil air traffic.

Radar approach control and Bergstrom AFB precision approach control are used to ensure that pilots comply with established glide slopes to the north and with local pattern approach altitudes. Where controller techniques/procedures cannot resolve individual conflicts, depending upon traffic volumes and routings, the two traffic flows must be on a one-for-one basis. No simultaneous operations are possible for north-flow operations. The base tower may have automatic, independent releases for departures during south flow operations, away from Mueller traffic. When at altitude, the military traffic is then vectored to the MOAs or onto an airway. During VFR conditions, Bergstrom AFB traffic can make VFR approaches to the airfield, independent of Mueller traffic. However, IFR traffic flows into the base must be sequenced with Mueller departures. Certain flight training activities have been shifted to an auxiliary airfield to reduce aircraft operations in the Austin area.

Bird/aircraft strike hazards in the vicinity of the base can be attributed primarily to a city landfill 5,000 feet south of the base. Base and city officials have developed operating procedures to reduce the bird/aircraft strike problems.

3.2.4 Utilities

3.2.4.1 Water Supply

The base's water is supplied through the City of Austin's water treatment system. Austin currently operates plants with a combined water supply capacity of 225 million gallons per day (MGD). The total water pumpage for the City of Austin for FY 1989 was 38.3 billion gallons. The Green Water Treatment Plant, which supplies the base, has a capacity of 45 MGD. The total water pumpage for the Green Water Treatment Plant for FY 1989 was 9.0 billion gallons. In 1989, Bergstrom AFB recorded a total water usage of 338 million gallons, which is less than 1 percent of the total water usage for Austin, and approximately 4 percent of the Green Water Treatment Plant pumpage. The city is in the process of improving its water mains in the southeast area of Travis County. Water pressure in this area is derived by the Pilot Knob reservoir, which is located 720 feet above mean sea level (MSL). The elevations at the base range from 470 feet to 541 feet above MSL. This provides the base with sufficient water pressure for fire protection.

3.2.4.2 Wastewater Treatment

The Austin wastewater treatment system, which serves the base, currently consists of three treatment plants and one combined sludge storage and treatment facility. The total combined wastewater treatment plant capacity for Austin was projected to be 120 MGD. The total wastewater treated for the City of Austin in FY 1989 was nearly 23 billion gallons. The Hornsby Bend sludge storage and wastewater treatment plant currently services the base and has a peak capacity of 2.5 MGD. The total wastewater treated by the Hornsby Bend plant in FY 1989 was 256 million gallons. In 1989, the base recorded a wastewater output of 192 million gallons, which is less than 1 percent of the total usage for the City of Austin and 75 percent of the Hornsby Bend plant. Plans are currently under review to phase out the Bergstrom AFB contribution to the Hornsby Bend Treatment Plant. A final determination by the City of Austin has not been made. If the plans to phase out the Bergstrom AFB contribution to Hornsby Bend are implemented and the base remains open, the South Austin Regional Wastewater Treatment Plant (with a capacity of 40 MGD) would receive wastewater flows from Bergstrom AFB.

3.2.4.3 Solid Waste

Bergstrom AFB generates 9,600 tons of solid waste per year and spends over \$350,000 annually for a private contractor, Central Texas Refuse Corporation, to haul that waste to the Austin City Landfill, 4 miles south of the base. This landfill has 10 years of capacity remaining under current operations. The base solid waste management program, managed by the 67th CES/DEEC, is operated in compliance with all local, state, and federal laws and regulations. The base has also initiated a recycling program managed by the Bergstrom AFB Morale, Welfare, and Recreation to recycle cardboard, tires, batteries, aluminum cans, and paper. Scrap metals, textiles, and tires are recycled by the Defense Reutilization and Marketing Office (DRMO).

3.2.4.4 Energy

Electrical service is supplied to the base by the City of Austin. The city maintains two transformers, each with a capacity of 30 megavolt-amperes (MVA) at a substation immediately north of Bergstrom AFB. Current demands on the transformers at the substation are approximately 20 to 25 MVA; Bergstrom AFB accounts for approximately 15 MVA of this total. In 1989, the base used a total of 65 million kilowatt-hours, or about 1 percent of Austin service area's sales of 6 billion kilowatt-hours.

Total generating capacity for the entire Austin service area was 1,906 megawatts (MW) in 1986. This capacity was expected to increase to 2,132.2 MW in 1988 in order to meet demand. Peak demand of wattage volume is projected to increase 6.6 percent annually until 1995. Existing generating facilities are capable of maintaining capacities until 2000. However, transmission capabilities need to be upgraded, including lines and substations.

The Valero Transmission Company (VTC) currently supplies natural gas service to the base. The VTC functions as a gas supplier, not a gas distributor. As a supplier, VTC does not construct or provide financial assistance for internal distribution lines.

The VTC currently supplies the base with gas via a 4-inch-diameter service line that originates from a 20-inch transmission main approximately 4.5 miles northwest of the base. The VTC supplied approximately 639 billion cubic feet of natural gas to the Austin area. In 1989, the base used over 176 million cubic feet of natural gas. This represents 0.03 percent of the gas supplied by VTC to the Austin area. The VTC is only one of several companies supplying natural gas to the Austin area.

Two additional gas companies, Southern Union Gas and Lone Star Gas, are potential suppliers to the base. Southern Union Gas maintains a 6-inch gas line adjacent to State Highway 71 and the base. This line was used at one time to supply the base. Lone Star Gas maintains a 20-inch gas main approximately 1.5 miles east of the base.

3.3 HAZARDOUS MATERIALS/WASTE MANAGEMENT

3.3.1 Hazardous Materials Management

Hazardous materials are used and temporarily stored at the Base Supply Main Warehouse and at various industrial facilities throughout Bergstrom AFB (Table 3.3.1-1). These facilities are operated to maintain, repair, and recondition a wide variety of military equipment. Common operations at the industrial facilities include paint stripping, parts cleaning, and painting. Most of the hazardous materials associated with these operations consist of solvents (e.g., trichloroethane, toluene, acetone, methanol, xylene, and methylethyl ketone), paint strippers (e.g., ethanalamine), and paints. Other

Table 3.3.1-1**Industrial Operations Utilizing Hazardous Materials
Bergstrom AFB, Texas**

Organization	Mission	Building
67 CSG/DEMML	Fuels Maintenance	723
67 CSG/DEMEP	Power Production	723
67 CSG/DEMPA	Paint Shop	734
67 CSG/DEMMR	Refrigeration Shop	734
67 CSG/DEMP	Entomology	722
67 CSG/DEM	Housing Maintenance	5025
67 CSG/OTCL	Photo Lab	2003
67 MSS/MSIPR	Reprographics	2202
67 CSG/SSRAA	Auto Hobby Shop	600
67 CSG/SFC	Small Arms Range	1810
67 TRW/MACBV/E	Electric Environ Shop	1610
67 TRW/MACBF	Fuel System Shop	4533
67 TRW/MACPN	Small Gas Turbine	1612
67 TRW/MACAR	Communication/Navigation	1611
67 TRW/MACL	Test Equip Maint/Calibration	4803
67 TRW/MAEFC	Interim Fac Storage	1602
	Solvent Recovery System	1609
67 TRW/MAEBW	Wheel & Tire Shop	1610
67 TRW/MAEFN	Aerospace Ground Equipment (AGE)	1615
67 TRW/IN	Photo Processing	1400
67 TRW/LGTM	Vehicle Maintenance	1801 1806
67 TRW/LGTMR	Refueling Truck Maintenance	635
12 TIS/LCKM	Intelligence Maintenance	4588
602 TACC/LGKGE	AGE Maintenance	4580
602 TACC/LGKGV	Vehicle Maintenance	4577
712 ASOC/LGGR	Radio Maintenance-Batteries	402

Table 3.3.1-1, Continued

Organization	Mission	Building
712 ASOC/LGKV	Vehicle Maintenance	400
67 TRW/LGSFS	Fuel Storage	520
67 TRW/SGD	Dental Clinic	2700
67 TRW/SGHR	Medical Radiology	2700
Detachment 2, 17th MICO	Motor Pool	4934
Detachment ET 2, 17th MICO	Operations	PB
91 TRS/DOTP	91 PPIF	320
67 CSG/SPPM	Security Police	253
924 TFG/MAEA	AGE Shop	4562
924 TFG/MAESC	Corrosion Control Shop	4535
924 TFG/MAESR	Wheel & Tire Shop	4534
924 TFG/MACDW	Electric Shop	4535
924 TFG/MAESN	NDI Shop	4535
924 TFG/MACDF	Fuel Shop	4534
67 TRW/MARC	Regional Corrosion Control Facility	1608
DRMO Yard		624

hazardous materials used and stored at the base include fuels (e.g., JP-4, diesel, and motor gasoline), oils, herbicides and pesticides, a variety of chemicals (e.g., sulfuric acid, chlorine), and munitions.

Management and use of hazardous materials is undertaken in accordance with Occupational Safety and Health Act and Air Force Occupational Safety and Health requirements.

Aboveground and Underground Storage Tanks. There are 25 aboveground and 72 underground storage tanks (USTs) at the base. Sixty-nine of the USTs are currently in use, and three are abandoned (Table 3.3.1-2). A UST Management Plan has been drafted to outline an effective maintenance procedure to ensure environmentally safe and responsible management of USTs. The plan addresses current and anticipated regulatory requirements, inventory procedures, priority assessment in inventory analysis, physical testing for leaks, appropriate corrective action in the event of a leaking

Table 3.3.1-2

**Underground Storage Tanks at Bergstrom AFB, Texas
1990**

Facility Number	Capacity (gal)	Contents	Facility Number	Capacity (gal)	Contents
135	575	Diesel	4537	50,000	JP-4
201	250	Diesel	4537	50,000	JP-4
207	600	Diesel	4537	50,000	JP-4
208	250	Gas	4537	50,000	JP-4
210	1,000	Diesel	4537	50,000	JP-4
590	25,000	Gas	4537	50,000	JP-4
590	25,000	Gas	4537	50,000	JP-4
590	25,000	Waste	4537	50,000	JP-4
590	25,000	Waste	4544	500	Diesel
590	25,000	Waste	4551	575	Diesel
590	25,000	Diesel	4552	475	Diesel
590	25,000	JP-5	4553	2,000	Waste
590	25,000	Waste	4553	50,000	JP-4
590	25,000	JP-4	4553	50,000	JP-4
590	25,000	JP-4	4553	50,000	JP-4
590	25,000	JP-4	4553	50,000	JP-4
590	25,000	JP-4	4553	50,000	JP-4
590	25,000	JP-4	4553	50,000	JP-4
1101	1,000	Diesel	4553	50,000	JP-4
1520	10,000	Unleaded	4554	2,000	Waste
1520	10,000	Super Unleaded	4554	50,000	JP-4
1520	10,000	Unleaded +	4554	50,000	JP-4
1520	10,000	Unleaded	4554	50,000	JP-4
1603	265	Diesel	4554	50,000	JP-4
1609	8,000	Fuel Oil	4554	50,000	JP-4
1610	275	Diesel	4554	50,000	JP-4
1803	6,000	Diesel	4559	2,000	Unleaded
1804	12,000	Unleaded	4559	2,000	JP-4
1804	8,000	Unleaded	4559	2,000	JP-4
2700	9,500	Fuel Oil	4562	10,000	JP-4
2700	3,250	Diesel	4562	1,000	Unleaded
2900	35,000	Diesel	4564	300	Diesel
2909	550	Diesel	4574	250	Diesel
4202	1,000	Diesel	4575	250	Diesel
4514	275	Diesel	1610	--	Diesel (Abandoned)
4517	285	Diesel	4577	--	Diesel (Abandoned)
4537	2,000	Waste	4588	--	Unleaded (Abandoned)

UST, and effective maintenance and management to reduce the potential of leaking USTs. Furthermore, all USTs and pipelines are equipped with a leak detection system. Monitoring began in June 1990.

Pesticides/Herbicides. A variety of chemicals are also used at Bergstrom AFB to control pest infestations and ground foliage. Assorted insecticides and herbicides in containers ranging in size from 5-gallon cans to 55-gallon drums are stored at the Entomology Storage Area, Building 722.

Other Hazardous Materials. Corrosives, acids, compressed gases, and various other hazardous materials are received and temporarily stored at the Supply Storage Area and the Regional Corrosion Control Facility. Chemicals stored in supply open storage are distributed to the various industrial shops and other base operations such as the hospital, armament shop, and labs, to replenish depleted stocks.

3.3.2 Hazardous Waste Management

The base is currently operating its hazardous waste program as a large quantity generator under interim status and is required to comply with Resource Conservation and Recovery Act (RCRA) hazardous waste regulations established by the Environmental Protection Agency (EPA) and administered by the Texas Water Commission under Texas Administrative Code 335.

The majority of hazardous waste generated at the base is petroleum products, type 140 solvents, hydraulic fluids, and lubricating oils. The Regional Corrosion Control Facility is the largest generator of waste products at the base. Other waste generated in significant amounts includes contaminated rinse water, paint waste, paint sludge, used paint arrestor filters, fluorescent dye penetrants, and various halogenated and nonhalogenated solvents.

Hazardous waste stored at satellite accumulation points is removed to the Interim Hazardous Waste Storage Area (IHWSA) facility within 3 days. The base operates the IHWSA under an interim RCRA permit and has applied for a finalized RCRA Part B permit to store hazardous wastes onbase. The Part B application includes plans for the completion of a conforming storage facility meeting RCRA requirements.

The hazardous waste stored at IHWSA is removed by a private contractor and taken to an approved treatment, storage, and disposal (TSD) facility for disposal. The DRMO prepares all contracts for disposal of hazardous waste in accordance with Defense Environmental Quality Program Policy Memorandum (DEQPPM) 80-5.

All hazardous waste generated at the base is taken to the IHWSA as previously described, with the exception of the hazardous waste generated by the Regional Corrosion Control Facility. This hazardous waste is disposed of through subcontractors hired by the facility, not by DRMO.

Currently, most petroleum, oil, and lubricants (POL) waste products are separated from hazardous wastes and collected at a central facility (Building 590). Used engine oil is sold for energy recovery provided it meets the requirements of 40 CFR 266, subparts D and E. Oil/water separator wastes are collected, stored, and analyzed to determine if they may be recycled as wastewater or disposed. As a standard practice, battery electrolytes are neutralized prior to being incrementally discharged into the sanitary sewer system. Batteries are reclaimed by a local parts and battery company.

At present there is no recycling of used solvents and lacquer thinners, but there are plans to install a solvent recovery system to recycle the 700 gallons of thinner, and methyl ethyl ketones generated

annually. Until the solvent recovery system is installed, used type 140 solvents are drummed and recycled by the DRMO.

The Management of Hazardous Waste Plan 19-1 has been developed to establish specific policies and responsibilities for the management of hazardous wastes at the base. The plan is based on a series of DEQPPMs designed to comply with federal, state, and local regulations. The plan adopts the "cradle to grave" goals of the EPA and directs the systematic control of the collection, separation, storage, transportation, processing, treatment, recovery, and disposal of hazardous wastes at the base. The primary goals of the plan are to provide guidance and directives for waste minimization.

The base has developed and established several other plans, along with the UST Management Plan, which describes procedures, methods, training programs, and equipment needed in the event of releases, accidents, and spills involving oils and hazardous substances. Several waste minimization projects have been established by the base to reduce quantities of hazardous wastes generated. Waste minimization may be accomplished through recycling of spent materials, substitution of biodegradable products for hazardous materials, implementation of technological changes, silver reclamation, and segregating hazardous waste from POL waste.

3.3.3 Installation Restoration Program Sites

The Installation Restoration Program (IRP) predates the Environmental Protection Agency's (EPA) Superfund. Current authority for DOD to manage Air Force cleanup under the IRP was contained in the 1980 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Public Law 96-510, commonly known as Superfund, was passed later in 1980. The Superfund empowered the EPA to clean up waste disposal sites that pose a threat to human health or the environment. The same law authorized the President to delegate to the Secretary of Defense the response authority for releases of hazardous substances from DOD facilities. Executive Order 12316 further mandates DOD to cleanup Air Force waste disposal sites.

The Superfund Amendments and Reauthorization Act of 1986 (SARA) provided authority for the Secretary of Defense to carry out the Defense Environmental Restoration Program (DERP) in consultation with the EPA. Executive Order 12580 was signed in January 1987. This law led to the alignment of IRP terminology and program structure more closely to the EPA Superfund Program and the National Contingency Plan (NCP).

The IRP was implemented to identify, report, and correct potential environmental deficiencies that could result in surface water, soil, and/or groundwater contamination, and the migration of contaminants beyond DOD installation boundaries. The IRP was originally developed as a four-phase program as follows:

- Phase I Problem Identification/Records Search
- Phase II Problem Confirmation and Quantification
- Phase III Technology Base Development
- Phase IV Corrective Action

As a result of the SARA of 1986, the terminology and procedures were changed. There are now three phases:

- Preliminary Assessment/Site Inspection (PA/SI)
- Remedial Investigation/Feasibility Study (RI/FS)
- Remedial Design/Remedial Action (RD/RA)

Phase I of the IRP was conducted in 1983 to review past and present industrial operations and the past management practices regarding the use, storage, treatment, and disposal of hazardous material/waste at the base. Twenty-six disposal or spill sites were identified and evaluated for the potential contamination by hazardous materials/waste and for the potential of hazardous materials/waste migration from the disposal or spill sites. One site was later added for a total of 27 sites.

Table 3.3.3-1 lists the 27 disposal/spill sites at the base. Twelve of these sites were recommended for IRP Phase II Remedial Investigation/Feasibility Study (RI/FS) (Figure 3.3.3-1). Field studies were conducted on these sites to collect the necessary data to determine the magnitude, extent, and possible directions of contaminant migration. The remaining sites were not considered to present significant environmental concerns and were not recommended for further action.

Combined Southeast Landfill Area. Landfill areas 3 through 7 are located on 51 acres along the southeastern boundary of the base. They are grouped together as a single disposal area. Each of these landfills was operated for 4 to 7 years between 1952 and 1980. Predominantly domestic solid waste and construction rubble were disposed of in these landfills. Some pesticide containers, paint cans, and incidental quantities of waste paints, thinners and strippers, and spent solvents were also disposed of in the landfills. Seven 55-gallon drums containing DDT were found at landfill 6. During the old IRP Phase II-Stage II investigations completed in 1989, six monitoring wells were installed to a depth of 50 feet. Sediment, surface water, and groundwater samples were analyzed; trace amounts of petroleum hydrocarbons; arsenic; 1,2-dichloroethane; 1,1-dichloroethene; and trichloroethylene were found.

Site 8 - JP-4 Spill/Overtopped Tank. Site 8 is located in the POL bulk storage area (Tank 513). In 1975, 2,000 to 8,000 gallons of JP-4 fuel were spilled and soaked into the gravel base. During the old IRP Phase II-Stage II investigations, evidence of soil and groundwater contamination from petroleum hydrocarbons, ethyl benzene, heavy metals, total xylenes, and 1,3-dichlorobenzene was detected.

Site 9 - JP-4 Pipeline Leak. Site 9 is located near the base Flight Control Tower. In 1984, a pipeline break was detected during routine testing of the gas line. An estimated 200 to 300 gallons of JP-4 spilled onto the ground; 75 percent was recovered. During the old IRP Phase II-Stage II investigations, evidence of petroleum hydrocarbons, ethyl benzene, total xylenes, and heavy metal contamination was detected in the soil and groundwater.

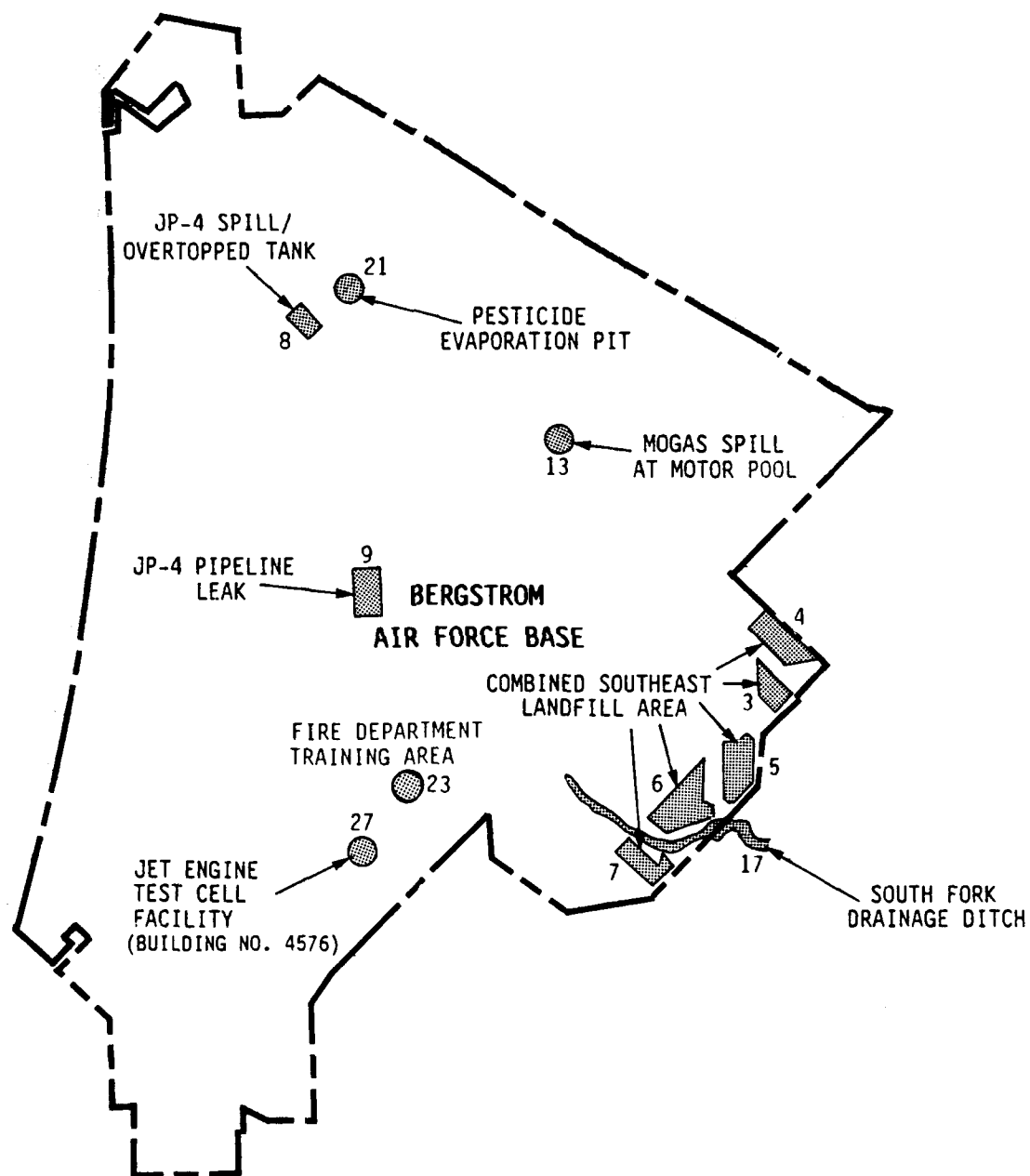
Site 13 - Motor Gas Spill. Site 13 is in the motor pool vehicle fueling area at the intersection of 3rd Street and Avenue B. Periodic spills of motor gas (MOGAS) occurred between 1974 and 1978.

Approximately 25 to 50 gallons of MOGAS were spilled per incident, or 1,600 to 3,200 gallons over 4 years. The spills ceased in 1978 when a faulty adaptor was replaced. During the old IRP Phase II-Stage II investigations, evidence of soil and groundwater contamination from heavy metals, petroleum hydrocarbons, benzene, and ethylene benzene was detected.

Site 17 - South Fork Drainage Ditch. Site 17 is an open drainage system that begins near Building 4602 and runs between landfills 6 and 7. Between 1943 and 1982, occasional inadvertent releases of JP-4 fuel into the ditch occurred from an overloaded oil/water separator. Another oil/water separator was installed in 1981. The South Fork drainage ditch serves as conduit for overland runoff to Onion Creek and experiences continuous water flow only during periods of heavy rain. During the old IRP Phase II-Stage II investigations, petroleum hydrocarbons and lead were constituents of concern in the drainage ditch sediments.

Table 3.3.3-1
Summary of Potential Hazardous Waste Sites

Site	Site Description	Size of Impact Area	Recommended for Phase II Study
1	Landfill Site 1	2 acres	No
2	Landfill Site 2	16 acres	No
3	Landfill Site 3	10 acres	Yes
4	Landfill Site 4	10 acres	Yes
5	Landfill Site 5	12 acres	Yes
6	Landfill Site 6	12 acres	Yes
7	Landfill Site 7	7 acres	Yes
8	JP-4 Fuel Spill/Overtopped Tank	2,000-8,000 gallons (JP-4)	Yes
9	JP-4 Fuel Spill/Pipeline Leak	200-300 gallons (JP-4)	Yes
10	JP-4 Fuel Spill/Faulty Valve	950 gallons	No
12	Dibrom/Diesel Spill at Golf Course	50:1.5 gallons:quart (diesel:dibrom)	No
13	MOGAS Spill at Motor Pool Area	1,600-3,200 gallons (MOGAS)	Yes
14	Road Oiling Area	4,200 gallons (waste oil)	No
15	JP-4 Fuel Spill/Apron Excavation	1,400 gallons (JP-4)	No
16	JP-4 Spill/Refueling Truck	unknown (JP-4)	No
17	South Fork Drainage Ditch	26,000-36,000 gallons (JP-4)	Yes
18	JP-4 Fuel Spill/Fuel Systems Repair Shop	2,000 gallons (JP-4)	No
19	JP-4 Fuel Spill/Fuel Tank	200 gallons (JP-4)	No
20	Fuel Tank Jettison Area	75 acres (JP-4)	No
21	Pesticide Evaporation Pit	unknown (pesticide)	Yes
22	Sludge Weathering Pit	unknown (AVGAS-JP-4)	No
23	Fire Department Training Area	unknown (waste fuels)	Yes
24	Radioactive Waste Disposal Site	unknown (radium)	No
25	Asphalt Primer Spill/Avenue F	runoff (asphalt primer)	No
26	Asphalt Primer Spill/Star Drive	runoff (asphalt primer)	No
27	Jet Engine Test Cell (Facility 4576)	unknown (JP-4)	Yes



LEGEND

--- BASE BOUNDARY

PHASE II SITES AS SHOWN
IN TABLE 3.3.3-1.



SCALE IN FEET
0 2850

Source: Radian Corporation 1989.

FIGURE 3.3.3-1 INSTALLATION RESTORATION PROGRAM (IRP) SITES,
BERGSTROM AFB, TEXAS

Site 21 - Festicide Evaporation Pit. Site 21 is adjacent to Facility 724 in the northern section of the base. Until 1973, the concrete evaporation pit was used to rinse pesticide containers. Unknown quantities of pesticides soaked into the surrounding ground. During the old IRP Phase II-Stage II investigation, soil samples were found to contain petroleum hydrocarbons, prometon, heptachlor epoxide, and arsenic to depths of 15 feet. Groundwater samples were not taken.

Site 23 - Fire Department Training Area. Site 23 was used to conduct fire department training exercises. Prior to 1972, recovered fuels, commingled waste oils, and spent solvents were stored in 55-gallon drums. At times, up to 50 drums were stored at the facility. The contents of these drums and recovered fuels were emptied into an unlined burning pit, ignited, permitted to burn for 30 seconds, and extinguished. From 1972 to 1982, only JP-4 fuel was used during training exercises, the JP-4 fuel was stored in an aboveground storage tank. During training exercises, the JP-4 fuel was drained by gravity flow lines into the water-saturated pit prior to ignition. Aqueous film-forming foam was used to extinguish these fires. Since 1982, the pit has been enlarged, regraded, and fitted with a limestone base. A water drafting pit and oil/water separators have been installed to receive runoff. On the basis of the results and recommendations of the old IRP Phase II-Stage II investigations, an RI/FS was initiated and performed under contract in 1988.

Facility 4576 - Jet Engine Test Cell. The jet engine test cell in Facility 4576 is near the intersection of Taxiways 7 and 9. Water was sprayed for air pollution control and noise suppression during test activities. Contaminated water was inadvertently routed to an open drainage ditch when an inadequate oil/water separator overflowed. The oil/water separator was replaced with a larger one in 1988. During the old IRP Phase II-Stage II investigation, trace amounts of total petroleum hydrocarbons were detected in the soils. Groundwater samples taken from nearby monitoring wells showed trace amounts of trichloroethene.

The old IRP Phase II-Stage II investigations recommend continued monitoring and additional field investigations to determine the source, mobility, toxicity, and volume of detected contaminants for all 12 sites. Findings reveal that significant contamination does not exist; however, monitoring will continue through 1990 because 1989 was a dry year.

3.3.4 Asbestos

At present, the base has no official asbestos abatement plan. However, the base follows certain guidelines for asbestos abatement. Buildings are inspected and bulk samples taken at base facilities scheduled for construction with high health risk occupants (e.g., hospital and child care center) and high density rates, as required. If asbestos-containing material is found to be in a friable state, the base personnel assess the abatement required and determine whether the work can be accomplished in-house. Decisions to remove damaged friable asbestos materials are based on the degree of risk to facility occupants, use of the facility, and cost effectiveness. Asbestos-containing materials are also to be removed or encapsulated when the opportunity exists during minor construction or repairs. Asbestos-containing materials that are not damaged or subject to potential disturbance, and therefore do not pose a potential health threat, will be left in place. Abatement actions requiring more equipment, such as total containment, negative air pressure, shower facilities, etc., will be contracted to asbestos abatement specialists.

3.3.5 Polychlorinated Biphenyls

The base has 650 transformers and 50 capacitors. In 1984, the base initiated a basewide remedial program to remove and replace or retrofill polychlorinated biphenyl (PCB) transformers (over 500 parts per million [ppm] PCB), PCB-contaminated transformers (50 to 500 ppm PCB), and PCB

capacitors. All articles or equipment with PCB contents in excess of 50 ppm have been removed or retrofilled with the exception of 2 transformers and 15 capacitors.

The two large transformers, one each in the hospital and 12th Air Force Headquarters building, and 15 capacitors (11 in the airfield lighting vault and 4 in the CE yard) require proper disposal at this time. Removal of the remaining PCB equipment will occur by September 30, 1991.

3.3.6 Radon

The Radon Assessment and Mitigation Program (RAMP) was initiated by the Air Force to determine the extent and magnitude of radon contamination in existing facilities and the level of radon exposure to military personnel and any necessary mitigation measures. Bergstrom AFB conducted an initial assessment survey for radon contamination in 1987. Fifty buildings were monitored over a 3-month period. This survey identified eight buildings with radon levels greater than 4 picoCuries but less than 20 picoCuries per liter of air. The EPA has established 4 picoCuries per liter of air as the lower value for potential risks and 20 picoCuries per liter of air as the radon level requiring immediate mitigation if the exposure equals to or exceeds 7 years. The average residency time in those buildings is less than 2 years. These eight buildings are located in the housing area.

The findings of the initial assessment ranked Bergstrom AFB as a medium probability group that warranted more extensive monitoring to determine the extent of radon contamination. Consequently, a monitoring program with over 1,000 monitors was initiated in December 1989. This monitoring program will be completed in May 1991.

3.3.7 Radioactive Waste

Used and out-of-service control panels containing low-level radioactive wastes were disposed of in three closed radioactive waste cells off Burleson Road. Unknown amounts of radioactive wastes (radium) were mixed with concrete and disposed of in the cast iron underground cells and covered with 4 inches of concrete. To date, no radioactivity above background levels has been detected during routine inspections.

3.3.8 Ordnance

A variety of weapons and ammunition are stored at the munitions storage area in the southeast section of Bergstrom AFB. The net explosive weight of the ordnance stored in the storage structures is 80,306 pounds. Occupancy or use of the property surrounding the munitions storage area is restricted in order to minimize the risk of injury to all personnel. The size of the restricted area is established by a Quantity-Distance (QD) radius. A QD is determined for each munitions storage igloo depending upon its construction and net explosive weight storage capacity. Bergstrom AFB QDs vary between 1,250 feet and 2,175 feet.

Bergstrom AFB does not have Explosive Ordnance Range. Instead, ordnance disposal is conducted at Fort Hood, Texas, once each quarter and involves quantities of less than 100 pounds. Explosive ordnance training, involving quantities of less than 5 pounds net explosive weight, is conducted twice a month in the southwest portion of the base in a 1,100-foot-diameter training area.

3.4 NATURAL ENVIRONMENT

3.4.1 Geology and Soils

3.4.1.1 Geology

In the vicinity of Austin, Texas, the Balcones Escarpment separates the West Texas Hill Country (and the Edwards Plateau) from the Blackland Prairie of the eastern Texas Gulf Coastal Plain. The Colorado River flows southeast across the escarpment, which is the demarcation between these distinct geomorphological regions of hill country and coastal plain. The escarpment is the western boundary of the Balcones Fault Zone and in the Austin, Texas, area, the general trend of this zone is north-northeast. Bergstrom AFB is approximately 8 to 10 miles east of the escarpment and 3 to 4 miles east of the fault zone (Figure 3.4.1-1).

The fault zone west of Bergstrom AFB is approximately 4 to 5 miles wide and is characterized by high-angle dip-slip normal faults; the major faults in the zone are downthrown to the east. In the study vicinity, the fault zone south of the Town Lake impoundment on the Colorado River has a concentration of smaller high-angle dip-slip faults that are bounded by the two major faults defining the zone. This same series of concentrated faults does not extend north of the river.

Geologic studies indicate that the Balcones Fault Zone developed during the Miocene (between 26-7 million years before present) and that there has been no fault activity since then. Bergstrom AFB is not in a zone of seismic risk; the presence of the Balcones Fault Zone does not present a geologic hazard.

Bedrock exposures in the Austin, Texas-Bergstrom AFB area include Upper Cretaceous marine limestones, dolomites, and clays; Tertiary Period sandy clays; and Quaternary alluviums, gravels, sands, silts, and clays. Total thickness of the Cretaceous units is approximately 2,500 feet and the overall dip of these units is to the southeast, except in the fault zone, where both magnitude and direction of dips are irregular.

Currently, no known mineral resources (i.e., oil, gas, coal, sand, and gravel) exist at Bergstrom AFB; the possibility of a geothermal resource is also remote. No federally-designated strategic minerals have been found at the base.

3.4.1.2 Soils

There are two major soil types on Bergstrom AFB: the Lewisville silty clay (0 to 2% slopes) and the Houston black clay (0 to 1% slopes). In addition, there are small occurrences of the Altoga silty clay series found in the southeast and northwest corners of the installation with isolated areas of Patrick soils along the base's western boundary.

The Lewisville silty clay formed in the old alluvium of Walnut Creek and covers approximately 85 to 90 percent of the base. This soil is characterized by deep, nearly level to gently sloping, well-drained silty clays. They are moderately permeable and have a high water capacity, and are susceptible to piping and severe cracking.

The parent material of the second-most prevalent soil, the Houston black clay, was the Taylor Marl. The surface of Houston soils typically is covered with gravel, has very slow permeability and has a high shrink-swell potential.

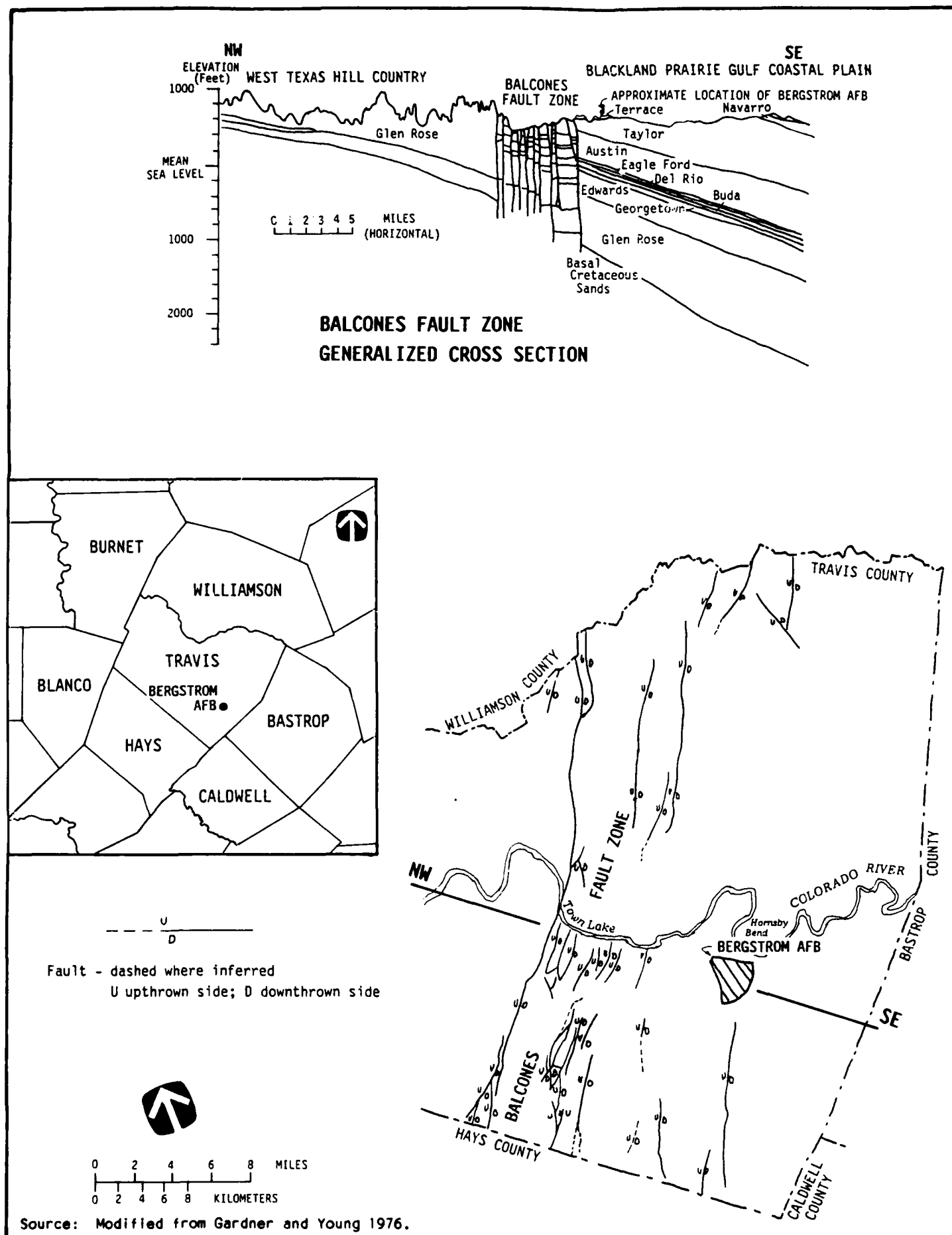


FIGURE 3.4.1-1 BALCONES FAULT ZONE, TRAVIS COUNTY, TEXAS

The remaining soils at Bergstrom AFB have numerous development restrictions. The Altoga soils have high shrink-swell potential, poor bearing capacity, and moderate permeability. Calcium carbonate makes up approximately 50 percent of the material. The Patrick soils have moderate shrink-swell potential, moderate permeability, and excessive seepage properties. In general, the soils at Bergstrom AFB are best suited to agricultural uses.

3.4.2 Water Resources

3.4.2.1 Groundwater

There are several aquifers beneath Bergstrom AFB. For the purposes of discussion, they can be classified as shallow and deep aquifers. There are several deep aquifers which occupy different rock strata and only one shallow aquifer. The shallow aquifer is hydrologically isolated from the deep aquifers by an impermeable stratum known as the Taylor Marl. Although several small faults occur in this vicinity, they have little displacement and occur in thick layers of shale, which essentially seals the faults and prevents them from conducting any water vertically between the aquifers.

The primary regional aquifer is the deep Edwards aquifer. The top of this aquifer varies from 500 to 1,000 feet below the land surface. This deep aquifer occurs in the limestone, dolomite limestone, and chert modules of the Edwards Formation. It is separated beneath by the impermeable Walnut Formation, which separates it from the still deeper aquifers of the Trinity Formation. Flow through the Edwards aquifer is generally in a southeastern direction. Primary recharge occurs from direct precipitation and stream water infiltration on the outcrops, which are located in the Balcones Fault Zone northwest of Bergstrom AFB. This fault zone generally defines a water quality boundary in this aquifer. North and west of the fault zone, water quality is good and the aquifer is used as a potable water source. South and east of the fault zone, the water quality is generally poor due to high levels of dissolved solids; it is therefore not utilized in this area. Because Bergstrom AFB is downslope of the recharge area of this aquifer, the installation is isolated geohydrologically from the aquifer and draws no water from it. Currently, the base does not affect this aquifer.

In the vicinity of the base, the aquifer of most concern is the shallow aquifer in the localized, surficial alluvial and terrace deposits of Quaternary age. These deposits are up to 60 feet thick with the water table at 20 to 40 feet below the surface. Flow in the aquifer is primarily south-southeast, but is locally variable depending on the surface of the underlying, impermeable Taylor Marl. Primary recharge to this aquifer occurs as direct precipitation on the outcrops of the deposits and percolation to the water table. The base occupies nearly all of the upland recharge area for this aquifer. Discharge from the aquifer occurs as seeps and springs to the South Fork Drainage Ditch, to Onion Creek, and to the Colorado River.

Discharge from the shallow aquifer also occurs through pumpage from numerous wells around Bergstrom AFB. Log records exist for 21 wells in the vicinity of Bergstrom AFB. The log data have been verified by the Texas Water Commission (TWC) for 13 of these wells and not yet verified for the remaining 8. Eight of the verified wells and three of the unverified wells are between Onion Creek and the Colorado River. In addition to these recorded wells, a number of privately dug wells may occur which are not necessarily recorded with the TWC; that agency only maintains records of wells dug by professional well drilling companies. At least two of the recorded wells are no longer in service. One was formerly used for irrigation of the golf course, but has been abandoned in favor of using effluent from the Hornsby Bend Treatment Plant.

The primary uses of the water obtained from the alluvial aquifer are irrigation and local rural consumption. The quality of the calcium carbonate water from these wells is considered poor due to

elevated levels of total dissolved solids, its hardness, and its alkalinity. In addition, it exceeds EPA drinking water standards for iron, sulfate, chloride, nitrate, and manganese.

3.4.2.2 Surface Water

The major surface hydrologic feature in the vicinity is the Colorado River. The Hornsby Bend of the river passes within 1,400 feet of the northeastern base boundary (Figure 3.4.2-1). The Colorado River is impounded upstream of Bergstrom AFB in two places creating Lake Travis and Lake Austin. Lake Travis serves as the primary source for drinking water and recreation for the city. Bergstrom AFB also receives drinking water from the Colorado River by purchasing it from the city.

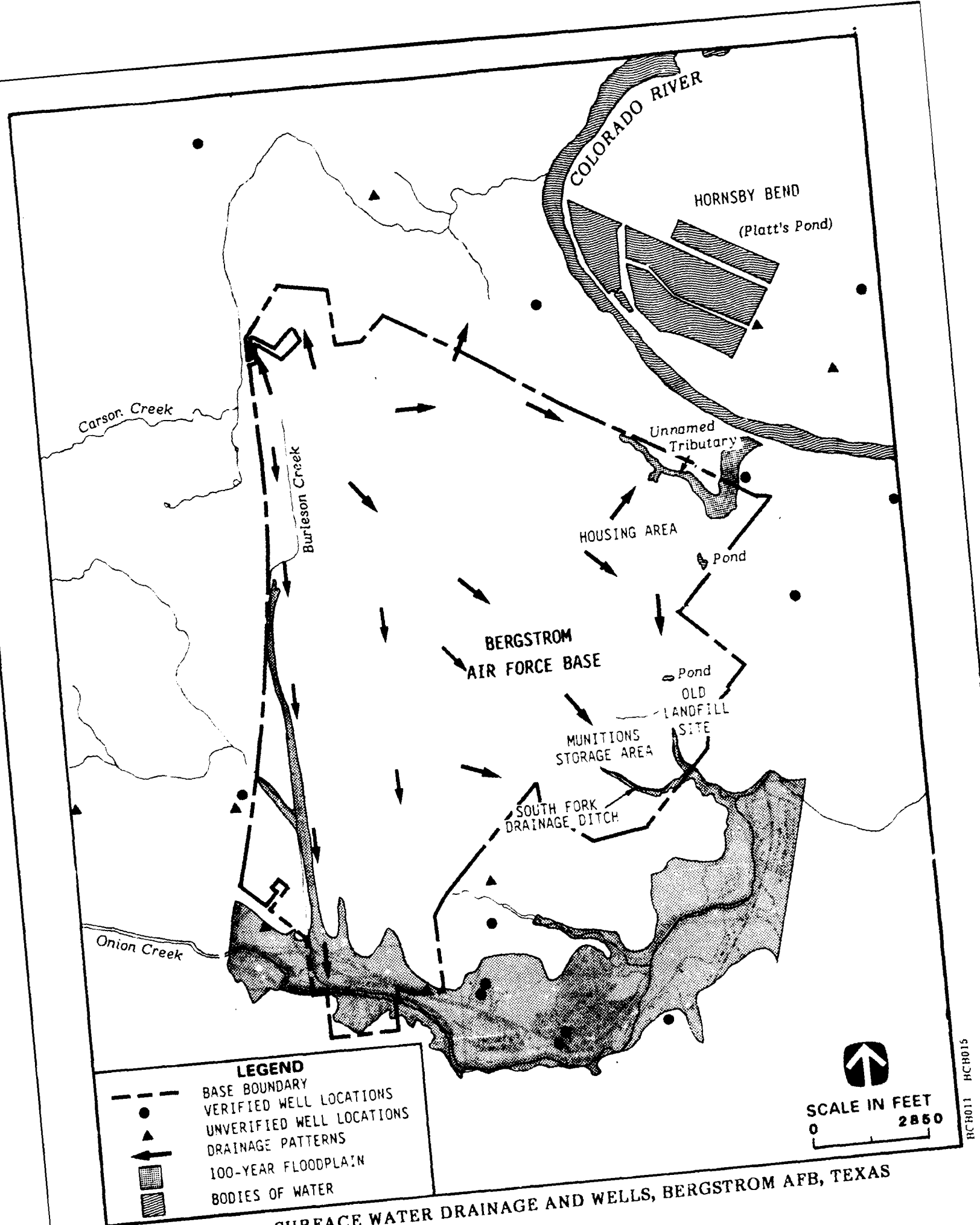
The entire installation is within the Colorado River drainage basin. Stormwater runoff is collected in storm sewers and drainage swales and directed to the river, mostly by way of three tributaries. The largest of the three tributaries is Onion Creek. The creek flows mostly south and east of the base, but a 3,000-foot length of the creek crosses the southernmost point of the base. This perennial stream drains a large area west and south of the base, including developed and agricultural lands and the McKinney Falls State Park.

Approximately 70 percent of the base drains to Onion Creek. The area south and west of the runway drains to Burleson Creek, which extends north along the western side of the runway and discharges into Onion Creek where it passes through the base. Drainage from much of central and eastern sections of the base, including most of the airfield and industrial support facilities, is directed toward the South Fork Drainage Ditch, which follows an alignment along the eastern border of Bergstrom AFB and enters Onion Creek approximately 1,400 feet from the base boundary. Both of these smaller streams are intermittent and their flow is highly dependent on stormwater runoff. The northeastern portion of the base, including the military family housing facilities, drains to a small, intermittent unnamed tributary to the Colorado River, which exits the base beneath State Highway 71 and enters the river approximately 1,300 feet to the north.

Carson Creek originates west of the base and flows north and east to the Colorado River; it does not cross the base. The vast majority of the Carson Creek watershed is the agricultural and developed lands north and west of the base, on the opposite sides of elevated State Highway 71 and U.S. 183. Only drainage from the northernmost portion of the base, which is largely open fields and grazing areas, is directed beneath State Highway 71 to tributaries of Carson Creek. Runoff from a small central section along the northern border of the base (including offices, fueling, and other industrial areas) is collected and discharged to the Colorado River via a 2,700-foot long, man-made drainage ditch.

The 100-year floodplain onbase has been delineated by the Federal Emergency Management Agency and the Army Corps of Engineers. The 100-year floodplain is wide along Onion Creek and covers 130 to 140 acres in the southernmost portion of the base. However, the floodplain on each of the smaller tributaries that drain the base is relatively narrow and covers less than an additional 10 acres. Approximately 4 percent of the Bergstrom AFB land falls within the 100-year floodplain.

Surface water quality could be potentially affected by base activities through the introduction of chemical contaminants into the stormwater runoff, particularly engine fuels, lubricants, and antifreeze. Relatively small amounts of these compounds may leak or be spilled during routine operations and maintenance onto pavements and hangar floors. These substances can enter the stormwater via two main routes. Primarily, precipitation may collect these contaminants from the impervious surfaces (runways, taxiways, aprons, roadways) and carry them to streams. The use of drainage swales at the base probably helps to reduce the amount of these substances carried away.



Secondly, 12 of the industrial buildings are equipped with floor drains that discharge into the stormwater drainage system. Each drain is equipped with oil/water separators to trap the oils washed into the drains. However, the potential exists for detergents and other chemicals to also be introduced into the drainage water. These substances constitute a slight hazard themselves, but they also may emulsify the water-insoluble oils, allowing them to mix with the water and be discharged despite the oil/water separators.

Stream water quality sampling indicates the extent of contaminants which actually are introduced into stormwater and ultimately into the streams in the vicinity, namely Onion Creek and the Colorado River. Of these two streams, Onion Creek would be most susceptible, as 70 percent of the base's stormwater is discharged into this stream.

Water quality is monitored quarterly by the base at each of the stormwater outfalls and along Onion Creek upstream and downstream of the base. The sewage effluent of the base to the Hornsby Bend Sewage Treatment Plant is also monitored quarterly. Samples over the past few years show occasional elevated levels of total dissolved solids and chemical oxygen demand occurring at some outfalls, probably due to their intermittent nature, i.e., a sample may be taken from the first flow after a dry period. Stormwater after a dry period would be expected to carry numerous solids which had collected in impermeable surfaces during the dry period.

On rare occasions, elevated levels of manganese and lead have occurred at an outfall in the western part of the base. These levels remain unexplained, especially because no manganese is used onbase and the outfall is removed from industrial activities onbase.

Bergstrom AFB does not have an onbase sanitary sewage treatment facility. All of Bergstrom AFB's sanitary and industrial wastewater is pumped to the City of Austin municipal system, particularly the Hornsby Bend Wastewater Treatment Plant.

Although no National Pollutant Discharge Elimination System permit is required, the base effluent is monitored by the City of Austin in order to determine the surcharge for industrial wastewater treatment, including parameters such as pH, biological oxygen demand, chemical oxygen demand, and suspended solids.

3.4.3 Air Quality

3.4.3.1 Existing Regional Air Quality

Bergstrom AFB and Travis County are in the Texas Air Control Board's air quality monitoring Region III, which has generally good air quality. National Ambient Air Quality Standards are presented in Table 3.4.3-1. Texas has adopted these standards. The county is a designated attainment area (air quality better than the National Ambient Air Quality Standards) for all criteria pollutants except particulates. Bergstrom AFB is not a designated nonattainment source of particulates. Ozone is the only air pollution parameter for which Region III has had compliance problems in the past. According to the City of Austin's Department of Environmental Protection, motor vehicles are the major source of air pollution in Austin. Motor vehicles are major contributors of hydrocarbons and nitrogen oxides, which, in the presence of heat and sunlight, chemically change to produce ozone.

3.4.3.2 Air Pollutant Emission Sources

The air quality emissions (carbon monoxide, sulfur oxides, nitrogen oxides, volatile organic compounds (VOCs), and total suspended particulates) from various sources in Travis County are

Table 3.4.3-1
National and Texas Ambient Air Quality Standards¹

Pollutant	Averaging Time	Primary Standards
Ozone	1 hour	0.12 ppm 235 $\mu\text{g}/\text{m}^3$
Carbon Monoxide	8 hour	9 ppm 10,000 $\mu\text{g}/\text{m}^3$
	1 hour	35 ppm 40,000 $\mu\text{g}/\text{m}^3$
Nitrogen Dioxide	Annual Average	0.05 ppm 100 $\mu\text{g}/\text{m}^3$
Sulfur Dioxide	Annual Average	0.03 ppm 80 $\mu\text{g}/\text{m}^3$
	24 hour	0.14 ppm 365 $\mu\text{g}/\text{m}^3$
PM ₁₀	24 hour	150 $\mu\text{g}/\text{m}^3$
Lead	Quarterly Arithmetic Mean	1.5 $\mu\text{g}/\text{m}^3$

Note: ¹Texas has adopted the National Ambient Air Quality Standards without any changes.

shown in Table 3.4.3-2. There is only one permitted pollutant emission source at Bergstrom AFB. The Texas Air Control Board permit (C-16959) is for stripping and painting operations at the Regional Corrosion Control Facility, a Government-Owned and Contractor-Operated facility. This construction permit was revised in June 1987. An operating permit application was received by the Air Control Board in February 1987, but because of a backlog of work, an operating permit has not been issued. For this reason the construction permit is valid until an operating permit can be issued. The operating permit will be valid for 15 years from the effective date.

Emission sources at Bergstrom AFB that do not require permits from the Texas Air Control Board include the hospital and a classified document incinerator, two gas stations, military operation fueling areas, and spray paint operations (other than the Regional Corrosion Control Facility). An additional source is the gasoline fueling area at Lake Travis. Air quality emissions from various sources at Bergstrom AFB are shown in Table 3.4.3-3.

3.4.4 Noise

Noise is unwanted sound, and in order to measure and control noise, a scale was developed based on the response of human beings to noise levels. The unit of this scale is the decibel (dB). The dB scale measures noise levels at one particular instant. Varying, instantaneous noise levels are averaged over a period of time in order to better describe ambient noise conditions at a particular location. Figure 3.4.4-1 presents maximum sound levels of common noise sounds.

Table 3.4.3-2

Travis County, Texas, Air Emissions Inventory, 1986
(metric tons)

	TSP	SO _x	NO _x	VOC	CO
Fuel Combustion	376	2,114	9,262	713	2,687
Industrial Process	0	0	0	0	0
Solid Waste Disposal	0	0	0	0	0
Air/Water Transportation	20	41	382	577	2,758
Land Transportation	97,574	1,886	21,489	13,671	98,569
Miscellaneous	449	15	85	13,597	2,202
Bergstrom AFB	<u>33</u>	<u>27</u>	<u>224</u>	<u>328</u>	<u>905</u>
TOTAL:	98,452	4,083	31,442	28,886	107,121

Source: Environmental Protection Agency 1990; Bergstrom AFB 1990.

Table 3.4.3-3

Bergstrom AFB, Texas, Air Emissions Inventory, 1986
(metric tons)

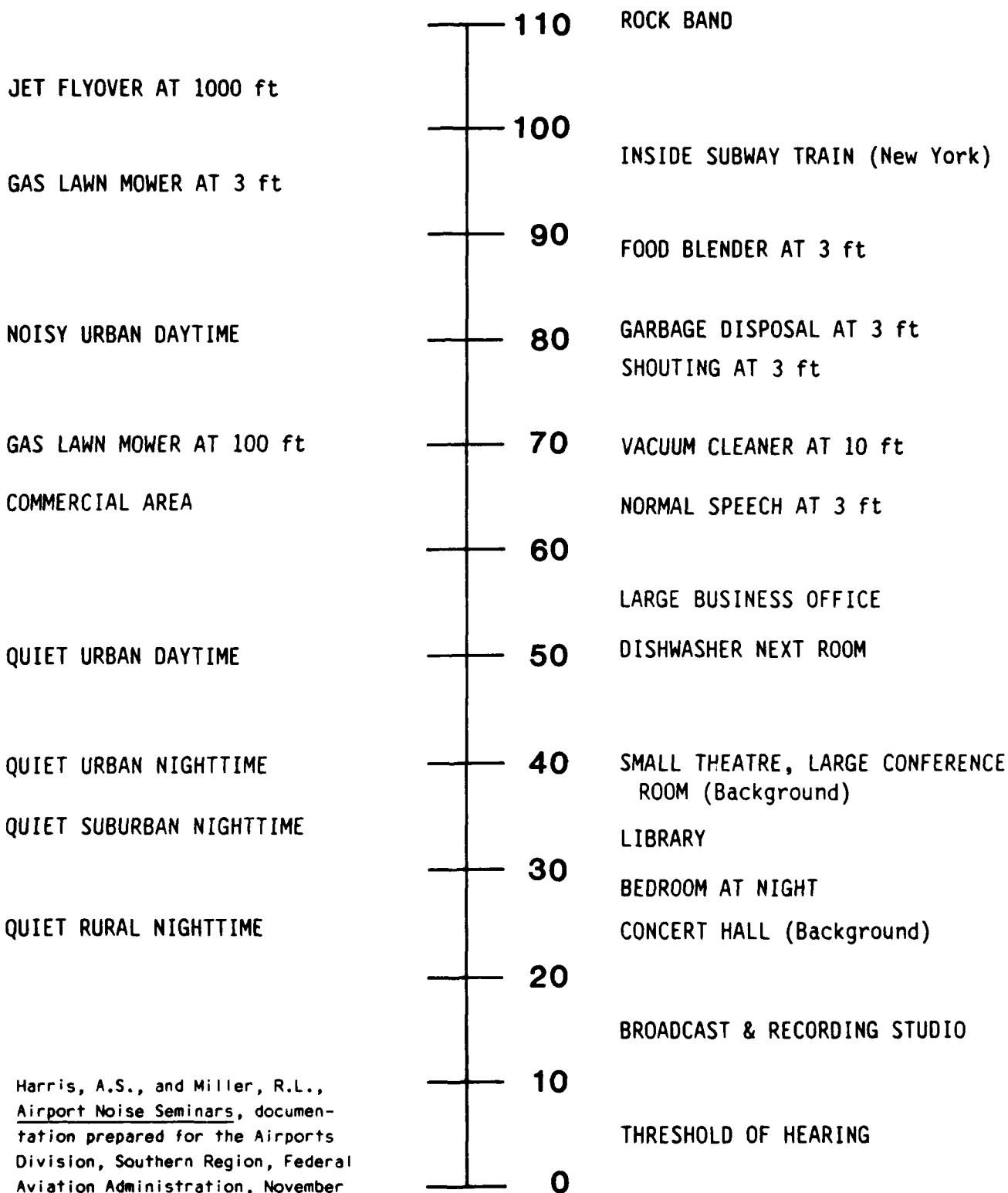
Emission Source	TSP	SO _x	NO _x	CO	VOC
Aircraft Emissions	17.57	21.57	92.96	541.81	139.40
Motor Vehicle and Aircraft Ground Operations Emissions	13.1	5.24	124.11	350.59	53.04
Stationary Sources	<u>2.74</u>	<u>0.04</u>	<u>7.33</u>	<u>12.28</u>	<u>135.85</u>
TOTAL Emission Rate:	33.41	26.85	224.40	904.68	328.29

Source: Bergstrom AFB Air Pollution Emission Inventory 1986.

COMMON OUTDOOR NOISE LEVELS

NOISE LEVEL dB(A)

COMMON INDOOR NOISE LEVELS



Source: Harris, A.S., and Miller, R.L., Airport Noise Seminars, documentation prepared for the Airports Division, Southern Region, Federal Aviation Administration, November 1977.

BCM014 BCB021

FIGURE 3.4.4-1 COMMON ENVIRONMENTAL SOUND LEVELS, IN dBA

The day/night (L_{dn}) noise averaging system has gained acceptability by most concerned federal agencies including the DOD. The L_{dn} is a 24-hour average of hourly averages. Each hourly average represents the sound energy of all the disparate sounds that occurred during that hour. The hourly average would be a continuous, uniform sound whose total sound energy would be equal to the sum of the individual sound energies of all the real sounds occurring during that hour. Typically, different hours of the day would have different hourly averages. For this reason and with the purpose of standardization, the L_{dn} is defined as an average of the 24 hourly averages of the day. Aircraft are a source of elevated noise levels. Airplanes, particularly jets, produce elevated noise levels not only on departure and arrival, but also under other circumstances such as while they are on the ground taxiing or undergoing engine testing.

The L_{dn} estimates for an airport are based on the number of flights of an average busy day, the number and orientation of runways, flight patterns, and other parameters that affect noise generation and propagation. These L_{dn} estimates are usually presented as noise contours. Noise contours are lines on a map of the airfield and its vicinity where the same L_{dn} is predicted to occur. Figure 3.4.4-2 shows the noise contours for Bergstrom AFB, as delineated by the 1987 Bergstrom AICUZ study. The pattern of noise contours at Bergstrom AFB is a relatively simple one because the base has only two parallel runways. The orientation of the runways is north-south. Noise contours range from 65 dB to 80 dB (Figure 3.4.4-2). The 5-dB interval chosen to represent noise contours reflects the Department of Housing and Urban Development (HUD) noise criteria commonly used for airfield noise. HUD considers L_{dn} ranges in relation to residential use of the land. An L_{dn} of 65 dB or lower is considered to be acceptable; an L_{dn} above 65 dB but not exceeding 75 dB is normally unacceptable unless some form of noise attenuation is provided; and an L_{dn} higher than 75 dB is unacceptable. Figure 3.4.4-2 shows that the higher L_{dn} occurs near the runways and the L_{dn} values spread radially away from them. The last L_{dn} recorded in Figure 3.4.4-2 is 65 dB because any L_{dn} lower than that would be considered acceptable for residential use of the land. Approximately 14,720 acres (10,500 persons) fall within the L_{dn} 65 dB contour at Bergstrom AFB. In addition to aircraft noise, highway traffic noise generated by U.S. 183 and State Highway 71 makes a significant contribution to the ambient noise in the vicinity of the base. Traffic noise levels along these routes are measured at 62 to 64 dB.

3.4.5 Biological Resources

3.4.5.1 Vegetation

Much of the land onbase is currently vegetated, although perhaps strongly altered from its original condition. The base contains approximately 990 acres of suburban vegetation, including well-manicured lawns and the golf course. Much of this type of vegetation is in the cantonment area around military family housing, unaccompanied housing, and other mission-oriented facilities. These areas are dominated by grasses, mostly bermuda (*Cynodon dactylon*) and St. Augustine (*Stenotaphrum secundatum*), with a variety of native and ornamental trees, shrubs, and hedgerows. Weekly mowing and annual tree/shrub trimming are performed in accordance with base appearance standards. Fertilizers are applied regularly to lawns, trees, and shrubs, and pesticides are used to control nuisance insects such as mosquitoes, tagworms, and caterpillars. Most weeds are manually removed, although a relatively small amount of herbicide is used to control weedy grasses such as crabgrass and Johnson grass.

Semi-improved areas cover approximately 680 acres, including areas immediately adjacent to runways and taxiways (lateral safety zones), picnic areas, munitions storage areas, pistol/rifle ranges, and the old landfill site east of the munitions storage area. These areas are largely open grassy areas; dominant species include king ranch bluestem (*Bothriochloa ischaemum*) and Johnson grass (*Sorghum*

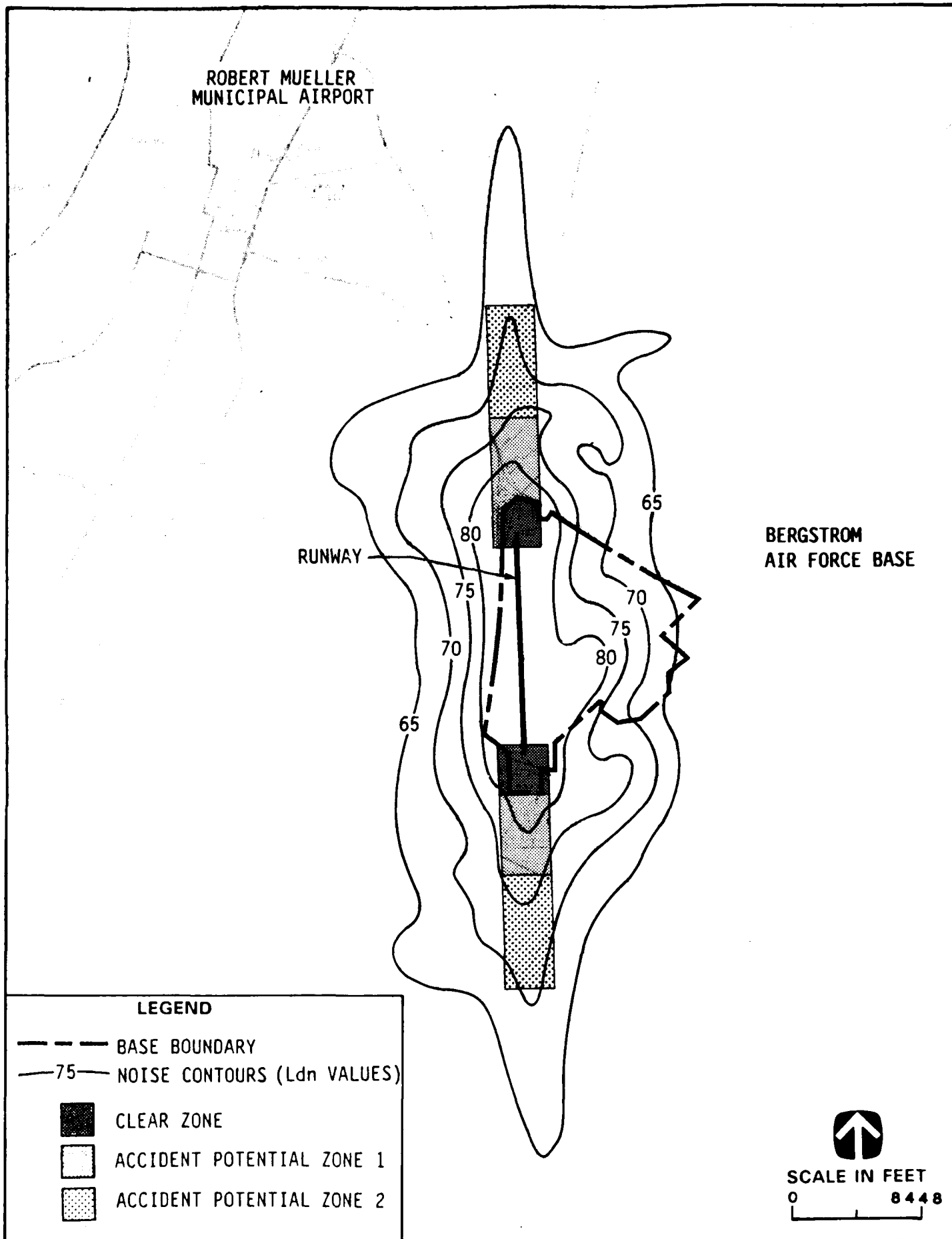


FIGURE 3.4.4-2 NOISE CONTOURS AND ACCIDENT POTENTIAL ZONES,
BERGSTROM AFB, TEXAS, 1990

halaspense), although a few other grasses also occur, including common bermuda grass, fescue (*Bromu unioloides*), and Texas wintergrass (*Stipa leneotricha*). The areas are mowed (except on the old landfill site) twice a month. Fertilizer is used as needed to maintain growth and reduce dust and erosion. Scattered trees also occur; several hundred trees have been recently planted in a recreation area near the munitions storage area. A wooded area occurs along the intermittent stream through the old landfill site.

The remainder of the base is considered unimproved, although this area is not uniform in character. Approximately 690 acres are still used for agriculture, particularly hay production. The hay production area is adjacent to and between the runways and primary taxiways (beyond the safety zone). This area is composed exclusively of grasses, mostly the same species as in the semi-improved areas. These areas are mowed two or three times annually by a private contractor who leases the area. However, the maximum height of the grass is maintained at 14 inches or less to reduce utilization of the area by bird fauna, in accordance with the base's bird/aircraft safety hazard plan.

Two grazing areas comprising approximately 200 acres are north and west of the runways and adjacent hay production areas. These areas are separated from the hay cropping areas by a maintenance road. The areas are predominantly grasslands, with scattered small trees, mostly live oak (*Quercus virginian*) and mesquite (*Prosopis chilensis*), the latter sometimes growing in dense patches. These areas are not mowed and are mainly used for grazing, particularly for the base riding club horses.

Two natural areas onbase comprise approximately 80 acres. These areas are not managed (e.g., mowed) or utilized in any specific manner, and generally support natural woody vegetation. Both are associated with streams that drain the base.

A 70-acre wooded area occurs just south of the main runway along both sides of Onion Creek. This area supports some large trees, dominated by cottonwood (*Populus deltoides*) and pecan (*Carya illinoensis*), and a dense shrubby understory. Some trees in the flight path of the runway are topped in accordance with aircraft safety regulations. Although frequently flooded, the soil in this area is considered well drained. This area would therefore not qualify as a wetland under the federal definition (Federal Interagency Committee for Wetland Delineation 1989).

A 10-acre natural area is in the northeast corner of the base along an intermittent tributary to the Colorado River and is within the base golf course boundaries. Woody vegetation also grows here along the edges of the ravine; dominant trees in this area are ash (*Fraxinus* spp.) and black willow (*Salix nigra*). This area is currently being maintained in a natural state.

3.4.5.2 Wildlife

The vertebrates known to inhabit the base are typical for the region, given the type of habitat provided, primarily suburban landscape and grasslands. Prominent grassland bird species at the base include black-throated sparrow (*Amphispiza bilineata*) and eastern meadowlark (*Sturnella magna*). Urbanized birds common to the base include starlings (*Sturnus vulgaris*), mourning dove (*Zenaida macroura*), and great-tailed grackle (*Quiscalus mexicanus*). Mammals common to these habitats include black-tailed jackrabbit (*Lepus californicus*), field mouse (*Rheithrodontomys* sp.), and Mexican ground squirrel (*Spermophilus mexicanus*).

Aquatic habitats are quite limited. The largest and most valuable aquatic habitat onbase is the 3,000-foot section of Onion Creek that crosses the southwestern corner of the base. This perennial stream contains permanent pools, thereby sustaining aquatic life during low-flow periods. The adjacent

woodland habitat increases habitat value in several ways: through shading of the stream, providing cover for inhabitants during hot summer months, providing nutrients input, and providing a natural floodplain.

Two other streams occur onbase: the tributary to the Colorado River in the northeastern corner of the base and the tributary to Onion Creek in the old landfill site. These streams are also bounded by some riparian woody growth, but their value is limited because their flow is intermittent and highly dependent on stormwater runoff from the base. Prominent fish in all of these streams are listed as sunfish and minnows.

Two ponds occur on the base golf course; they have a combined area of less than 1 acre. At the time of preparation of the base wildlife management plan, these ponds supported a limited fish fauna, primarily black bullheads (*Ictalurus melas*). Subsequently, the northern pond was pumped dry. It is now used as a catchment basin for effluent from the Hornsby Bend Treatment Plant; this pond is planned to be used to irrigate the base golf course. The southern pond maintains some water nearly throughout the year, although the water level fluctuates substantially.

Inventories of vertebrates in Travis County have resulted in a master list of 42 mammal species, 124 birds, 47 reptiles, and 45 fish species in the county. Many of these species may not occur on the base due to the lack of appropriate habitat. Still others may occur only as transients, particularly birds and bats.

One important feature of the base as a wildlife habitat is its location relative to other habitats nearby. Most important is the Hornsby Bend Wastewater Treatment Plant, north of the base along the Colorado River. This plant maintains two ponds for effluent treatment, also known as Platt's Ponds. These ponds are located in the Central Flyway for migratory birds, and are a primary stopover point. Also notable are the city landfill south of the base, which attracts birds such as gulls, crows, vultures, and other scavengers; and Decker Lake to the northeast. Birds regularly travel between these three points, and therefore may occur as transients at the base. This bird traffic constitutes a certain nuisance level to aircraft operations at the base.

The objectives of the base's wildlife management plan are essentially to protect and improve the habitat of the base without compromising its mission. The general management scheme is to attract wildlife to selected areas onbase while making the airfield area unattractive in order to reduce the potential conflict of aircraft and wildlife. Five natural areas were specifically chosen for habitat management based on their current wildlife value: the woodland/stream habitat in the northeastern corner, the old landfill site, the wooded area along Onion Creek, and the two grazing areas north and west of the runways. The wooded areas are scheduled to be maintained in a natural state, with the possible addition of native species. The grazing areas and the old landfill site are to be managed to increase wildlife utility by augmenting nesting habitats and by opening the existing dense vegetation to allow increased reproduction of other successional plants. To date, a limited amount of this action has been implemented.

Another objective of the base wildlife management plan is the reduction of nuisance species. Of particular importance are the jackrabbits which thrive on the open, lowcut fields around the runways. Establishment of some bunch grasses in this area has been chosen as a technique to control the rabbits, although it has not yet been implemented.

3.4.5.3 Wetlands

To date, no detailed wetland delineation studies have been conducted onbase. Wetlands are technically identified and delineated based on the federal "three-parameter" methodology, which requires that an area support hydrophytic vegetation (under natural circumstances), have hydric soil, and have indicators of wetland hydrology in order to be classified as a wetland (Federal Interagency Committee for Wetland Delineation 1989). For exact delineation of wetland boundaries, these three parameters must be evaluated in the field by vegetation and/or soil sampling and analysis of hydrologic indicators.

In lieu of a field study, an estimation of wetlands onbase can be inferred from the county soil survey, which delineates larger areas of soil types classified as hydric; topographic maps; National Wetland Inventory (NWI) maps, if available; and written descriptions of vegetation.

No hydric or wetland soils occur onbase, thereby indicating no widespread wetlands. The grassland vegetation over the majority of the base, with the exception of the limited amount of riparian woodland, is largely dependent on a drier habitat. However, the NWI map (Montopolis Quadrangle) shows several small areas of wetlands or deepwater habitats onbase which would not be reflected in the soil survey (Federal Interagency Committee for Wetland Delineation 1989). All are directly associated with the waterbodies on the base (Figure 3.4.2-1) and have a total area coverage of approximately 17.25 acres.

Three types of unvegetated, open water habitats occur onbase. The NWI map shows Onion Creek as a perennial, permanent, riverine, open water habitat, covering an estimated 3.5 acres onbase. A section of the South Fork Drainage Ditch is shown as an intermittent riverine streambed. Five small areas of permanent, palustrine open water (i.e., ponds) are also shown. Three of these correspond to the ponds on the golf course. One small area is shown adjacent to the South Fork Drainage Ditch, and the other is shown along Burleson Creek. All of these ponded areas are also noted as having been artificially created and/or maintained by excavation. All total, these habitats cover approximately 3.75 acres.

The other two types of open water habitats are vegetated wetland habitats. One linear palustrine emergent marsh (i.e., vegetation dominated by herbaceous rather than woody species), about 3.75 acres in size, occurs along the upper reaches of Burleson Creek. Linear areas of palustrine, deciduous forested wetland occur along the South Fork Drainage Ditch, the unnamed stream in the northeastern corner of the base, and along a small tributary that enters Onion Creek from the south where the creek crosses the base. Forested wetlands are estimated to cover approximately 8 acres of the base along these streams.

3.4.5.4 Threatened and Endangered Species

No threatened or endangered plant or wildlife species have been identified on Bergstrom AFB by the U.S. Fish and Wildlife Service. However, 16 bird, 2 amphibian, 4 reptile, and 2 fish species are known to occur or may occur in Travis County. In addition, two federal candidate species (one plant and one fish) are known to occur in Travis County in the vicinity of the base (Texas Parks and Wildlife Department 1990). These species are listed in Table 3.4.5-1.

Although none of these species are known to nest onsite, several species, mainly the birds, may occur as transients. This is especially true due to the location of the base relative to other habitats that

Table 3.4.5-1

**Federally Listed, Federal-Candidate,
and State-Sensitive Species,
Bergstrom AFB, Texas, and Vicinity**

Scientific Name	Common Name	Jurisdiction ¹	Status ²	Occurrence ³
<i>Grus americana</i>	Whooping Crane	F	E	C
<i>Numenius borealis</i>	Eskimo Curlew	F	E	P
<i>Haliaeetus leucocephalus</i>	Southern Bald Eagle	F	E	C
<i>Falco peregrinus tundrius</i>	Arctic Peregrine Falcon	F	T	P
<i>Pelecanus occidentalis</i>	Brown Pelican	F	E	P
<i>Falco peregrinus anatum</i>	Peregrine Falcon	F	E	P
<i>Charadrius melodus</i>	Piping Plover	F	E	C
<i>Vireo atricapillus</i>	Black Capped Vireo	F	E	P
<i>Sterna antillarum</i>	Interior Least Tern	F	T	P
<i>Buteo albicaudatus</i>	White Tailed Hawk	S	T	P
<i>Buteo albonotatus</i>	Zone Tailed Hawk	S	T	P
<i>Plegadis chihi</i>	White Faced Ibis	S	T	C
<i>Elanoides forficatus</i>	American Swallow Tailed Kite	S	T	P
<i>Pandion haliaetus</i>	Osprey	S	T	C
<i>Mycteria americana</i>	Wood Stork	S	T	P
<i>Dendroica chrysoparia</i>	Golden Cheeked Warbler	F	E	C
<i>Typhlomolge rathbuni</i>	Texas Blind Salamander	F	E	C
<i>Bufo houstonensis</i>	Houston Toad	F	E	C
<i>Alligator mississippiensis</i>	American Alligator	F	T	C
<i>Lampropeltis triagulum annulata</i>	Texas Horned Lizard	S	T	C
<i>Macroclemys temmincki</i>	Mexican Milk Snake	S	T	C
<i>Etheostoma fonticola</i>	Alligator Snapping Turtle	S	T	P
<i>Cycleptus elegans</i>	Fountain Darter	F	E	C
<i>Texella reddellie</i>	Blue Sucker	S	T	P
	Bee Creek Cave Harvestman	F	E	U
<i>Texamaurops reddelli</i>	Kretschmarr Cave Mold Beetle	F	E	U
<i>Microcreagris texana</i>	Tooth Cave Pseudoscorpion	F	E	U
<i>Rhadine persephone</i>	Tooth Cave Ground Beetle	F	E	U
<i>Neoleptoneta myopica</i>	Tooth Cave Spider	F	E	U
<i>Physostegia correllii</i>	Correll's False Dragon-head	F	2	P
<i>Micropterus treculi</i>	Guadalupe Bass	F	2	C

Notes: ¹Jurisdiction: F = federally listed; S = state listed.

²Status: E = endangered; T = threatened; 2 = federal candidate Category 2.

³Occurrence: C = confirmed within 50-mile radius of Bergstrom AFB; P = possible, based on habitat available, species range, and historical sitings; U = unknown.

Source: Whitehead 1986; City of Austin 1990b; U.S. Environmental Protection Agency 1990; Texas Parks and Wildlife Department 1990.

attract migrants, particularly Platt's Ponds. Notable bird species sited at Platt's Ponds include the bald eagle and piping plover. The use of the base by any of these threatened or endangered species depends on their habitat requirements and the accessibility of the base to these species.

3.4.6 Cultural and Paleontological Resources

3.4.6.1 Prehistoric Resources

Prehistoric sites identified on and in the vicinity of Bergstrom AFB include occupation sites, quarry sites, and lithic scatters. Eight cultural resource surveys have been conducted in areas adjacent to the base in conjunction with the Onion Creek Wastewater Interceptor (1979-1986), and a reconnaissance survey was conducted for portions of Bergstrom AFB in 1987. Fourteen sites were identified within 1 mile of the base, nine of which are considered eligible or potentially eligible for the National Register of Historic Places (NRHP).

Two concentrations of prehistoric sites have been recorded adjacent to Bergstrom AFB: the Navarro cluster and the Bergstrom cluster. The Navarro cluster consists of seven occupation and quarry sites along lower Onion Creek just south of the runway. These sites contain the Navarro Formation flint cobbles, lithics, burned rock, and bone. Charred musselshell was recovered from one buried site (41TV434). The Bergstrom cluster consists of 17 sites, 7 of which are adjacent to the Weapons Storage Area on the north side of Onion Creek. The seven Bergstrom sites include four occupation sites, a quarry site, and two smaller lithic scatters. The occupation sites contain fire hearths, lithics, burned rock, bone, and musselshell.

A cultural resources survey was recently conducted on undeveloped portions of the base. No additional sites were found. However, four previously recorded prehistoric sites exist on the base. One site, 41TV434, is in the Navarro cluster and the other three sites are associated with the Bergstrom cluster. Two of the sites, 41TV434 and 41TV437, lack physical integrity and are not considered NRHP-eligible. Sites 41TV435 and 41TV436 are both large occupation sites containing buried fire hearths and lithics; both have been recommended as eligible for the NRHP.

Few Native Americans reside in Texas, but the Austin area was frequented by the Comanche and several other Plains tribes, who now live in Oklahoma. The Texas Indian Commission has been contacted in order to identify specific Native American groups with concerns in the project area.

3.4.6.2 Historic Resources

Historic resources on and in the vicinity of Bergstrom AFB include homesteads, historic trails, a bridge, and various types of standing structures. One area cluster of eight historic sites has been identified south of Bergstrom AFB and is designated the Moore's Crossing/Fincher Road area. The eight sites include the old Moore's Crossing Bridge, an historic ford with old roads on the opposing banks, 19th- and 20th-century household scatters, and a cemetery. Four of these historic sites have been recommended as potentially eligible for the NRHP. The Greenwood Cemetery contains headstones with both Anglo-Saxon and Spanish surnames; however, cemeteries are among those types that ordinarily do not qualify for the NRHP (36 CFR 60.4).

Bergstrom AFB was originally established in 1942 as Del Valle Army Air Base. Thirty structures on the base were built before 1945; the base prepared site forms on the structures and they were evaluated for their NRHP eligibility. In 1986, the base recommended, and the State Historic Preservation Officer concurred, that none of the structures be considered architecturally or historically important to warrant NRHP nomination.

3.4.6.3 Paleontological Resources

Geologic formations that have surface exposures on Bergstrom AFB include the Colorado River deposits (Quaternary age alluvium), the Navarro Group, the Marlbrook Marl, and the Ozan Formation, all of Cretaceous age. The majority of the base is on the Colorado River deposits. The Ozan Formation occurs in the northwest portion of the base and the Navarro Group and Marlbrook Marl are exposed along Onion Creek on the south side of the base. It is likely that the only fossiliferous formation is the Marlbrook Marl on the south side of the base. Paleontological materials that may be associated with the marl are cephalopods, pelecypods, gastropods, and echinoids. No known paleontological localities have been identified adjacent to the base.

4.0 ENVIRONMENTAL IMPACTS

The focus of the discussion in this chapter is the potential environmental impacts of base closure. To provide the context in which impacts to the environment may occur, discussions of potential changes to local population, land use and aesthetics, transportation, and community utility services are included. The socioeconomic impacts of those changes are discussed only to the extent that they cause impacts to the natural environment. In addition, issues related to current and future management of hazardous materials/waste are discussed. Potential impacts to the natural environment are evaluated for geology and soils, water resources, air quality, noise, biological resources, and cultural and paleontological resources. These impacts may occur as a direct result of base closure or as an indirect result of changes to the community or changes in handling of hazardous materials/waste. Potential mitigation measures for all adverse environmental impacts are discussed following the resource sections. In addition, the relationship between short-term uses and long-term productivity of the environment and irreversible and irretrievable commitment of resources are discussed.

4.1 LOCAL COMMUNITY

The Air Force is sensitive to the adverse effects on the community that may be caused by closing a major employer like Bergstrom Air Force Base (AFB). Therefore, the Air Force has advised the local communities that planning assistance is available from the Office of Economic Adjustment (OEA) upon their request. The OEA, located in the Office of the Assistant Secretary of Defense, is the chief staff arm for the President's Economic Adjustment Committee (EAC). The EAC consists of federal department and agency heads and was established under Executive Order 12049 on March 27, 1978, to provide resources to various federal agencies in assisting communities affected by base closures. One of the OEA's activities is to assist support communities in the development and implementation of comprehensive economic recovery programs. The EAC then affords priority assistance to community requests for federal technical assistance, financial resources, excess or surplus property, or other requirements that are part of this program.

4.1.1 Community Setting

The potential socioeconomic effects of the closure of Bergstrom AFB on the City of Austin and Travis County were evaluated on the basis of projected changes in area employment and population. The direct economic effects of closure involve decreases in military and civilian employment and income on the base, as well as reductions in Air Force procurement of goods and services from the region. The indirect effects of closure were estimated through the application of the Economic Impact Forecast System (EIFS), Version 4.0, developed by the U.S. Army Corps of Engineers. EIFS estimates the "multiplier" between direct and indirect effects on the basis of current data describing the types and size of local industries and businesses in the county. Potential outmigration was estimated by applying appropriate demographic characteristics to the projected reductions in direct and indirect employment.

The closure of Bergstrom AFB would reduce employment in the local area by nearly 6,700 jobs including 4,600 military and civilian jobs onbase and about 2,100 secondary jobs. This analysis was based on projected manpower authorizations for the quarter prior to initiation of base closure. This reduction in employment would result in a decrease in personal income of about \$135 million annually and a decrease in local spending (including personal consumption expenditures and base procurement) of about \$167 million annually.

All active-duty military employees would be relocated, and it is projected that approximately 40 percent of direct and 10 percent of secondary civilian employees would also relocate to other areas. It is also expected that up to 10 percent of local military retirees would relocate closer to other active installations. Total population outmigration is projected to be approximately 12,400 people by 1993.

This represents about 2.1 percent of the population of the City of Austin, which is estimated to be 581,000 in 1993.

These reductions in employment and population may result in other socioeconomic effects such as increases in housing vacancy rates and the closure of certain public and commercial facilities. However, these socioeconomic consequences would not result in impacts to the biophysical environment while the base is under closure or caretaker status and are not discussed in this document.

A separate local economic consequences study is being prepared by the Air Force which will address in greater detail the effects closure may have on such socioeconomic resources. The Air Force will consult with state and local officials during preparation of the Local Economic Consequences Study. Copies of the economic study will be made available to members of Congress, state and local officials, and state Single Points of Contact under Executive Order 12372, *Intergovernmental Review of Federal Programs*.

4.1.2 Land Use and Aesthetics

Land Use. Overall land use and aesthetics would not be immediately affected by base closure; however, city land use plans, policies, and zoning would eventually change to reflect approved base reuse.

Base closure would affect the occupancy of mission-related facilities, housing, and community services. Management facilities would be vacated until the reuse of the property is determined, and until that time, a caretaker program would provide minimum maintenance to prevent deterioration of facilities and to retain a positive appearance.

The Lake Travis recreation area, which is leased by the Air Force, would be slightly affected by the closure. The lease provides a cancellation clause that allows the Lower Colorado River Authority to find an alternative leaseholder. In addition, public use of the recreation area would not be affected by the base closure.

The closure of Bergstrom AFB may have potentially beneficial effects to the land uses surrounding the base. The reduction of noise impacts and potential aircraft accidents may allow expansion of development opportunities in the undeveloped areas surrounding Bergstrom AFB. This increase in development could take advantage of existing infrastructure and services in the area. However, future land use would be affected by the nature of the base redevelopment.

Presently, Bergstrom AFB is unzoned by the City of Austin, and rezoning would depend on future land use and subdivision activity. Therefore, zoning would not be affected immediately.

Aesthetics. No construction or demolition activities are planned as part of the proposed closure action. The installation would be under government control within a secured boundary, and the Air Force Reserve units would remain in place. Buildings and grounds would be minimally maintained until final disposition is decided. Therefore, some change in aesthetics and visual resources is anticipated.

4.1.3 Transportation

4.1.3.1 Transportation Systems

Closure of Bergstrom AFB would have a primarily beneficial effect on transportation systems. Highway traffic in the vicinity of the base would be reduced after closure, and the cessation of active-duty military aircraft operations would reduce air traffic and related potential conflicts in the

area. Railways are not expected to be affected by base closure because they are not used by Bergstrom AFB, and they would not be used for closure-related transport.

4.1.3.2 Ground Traffic

During the closure period, traffic would increase due to freight shipment of equipment, supplies, and materials from Bergstrom AFB to the receiving locations. It is estimated that 3,650 military and 900 civilian employees would relocate as a result of base closure. Each employee represents a workstation that contains, on average, 3,000 pounds of equipment. Employee workstation equipment and supplies, therefore, represents 6,800 tons of materials that would be transported from Bergstrom AFB to receiving locations. Based on a truck capacity of 9 tons (18,000 pounds), approximately 760 truck-trips would be required to transport workstation equipment during the closure period.

Household goods would also be transported from Bergstrom AFB during the closure period. Based on 1,135 employees living onbase, a ratio of 65 percent accompanied and 35 percent unaccompanied employees, five rooms per accompanied and three rooms per unaccompanied employee, and 1,000 pounds per room, approximately 2,450 tons of household goods would be transported during the closure period. Assuming a truck capacity of 9 tons, approximately 270 truck-trips would be required to transport household goods from Bergstrom AFB to the receiving locations.

Based on the above assumptions, over 1,000 truck-trips would be generated by the transport of workstation equipment and onbase household goods during the closure of Bergstrom AFB. Even if the transport of equipment and household goods was limited to 10 days each quarter over the three-quarter closure period, only about 34 truck-trips per day would be added to the local roadway network. These additional vehicle trips represent a very small increase to existing traffic volumes on Texas State Highway 71, which directly serves the base. However, State Highway 71 is currently operating at level of service F and additional traffic would temporarily increase congestion. These truck-trips could be scheduled to avoid morning and afternoon peak traffic times.

Transport of household goods for base military and civilian employees living offbase who would leave the Austin area would amount to 7,400 tons and require 820 truck-trips over a period of at least 1 year. Transport of household goods for persons leaving the area because of secondary economic effects would be distributed over an even longer period. Therefore, it is very unlikely that transport of these persons and household goods would generate enough truck traffic at the same time and place to affect local traffic flow.

With base closure, traffic related to the base (both commuter and service vehicles) would be reduced by about 5,000 vehicles during the peak hours. This would improve the level of service on State Highway 71 from F to E.

4.1.3.3 Air Traffic

The closure of Bergstrom AFB would decrease the number of military aircraft operations in the Austin area by approximately 60 percent. The primary reduction would result from the inactivation of the 67th Tactical Reconnaissance Wing's 36 aircraft. The 18 aircraft of the 924th Tactical Fighter Group (TFG) and transient aircraft that use the Regional Corrosion Control Facility at Bergstrom AFB would remain at the base.

Conflicts between military and civilian air traffic may continue because of the basic airspace structure of the area; however, the volume of military air traffic would decline by approximately 135 operations daily with the closing of Bergstrom AFB (the 18 F-16A aircraft of the 924th TFG would remain at the base and transient military aircraft would continue to use the Regional Corrosion Control Facility at the base). Because of the military operating areas northwest of Austin, military aircraft would still fly through the Austin Airport Radar Surveillance Area and associated civilian aircraft traffic areas.

The closure of Bergstrom AFB would likely result in decreased utilization of the special use airspace areas and military training routes. Scheduling responsibility for airspace controlled by Bergstrom AFB would likely be transferred to other Department of Defense (DOD) installations currently using or expected to use the airspace. If no DOD user can be identified, the airspace could be returned to the Federal Aviation Administration for inclusion into the National Airspace System.

The reduced volume of military aircraft operations resulting from the base closure may reduce the potential for aircraft accidents. Changes in airspace structure and routings would further enhance air traffic safety.

4.1.4 Utilities

4.1.4.1 Water Supply

Bergstrom AFB received 4 percent of the total water usage from the Greenwater Treatment Plant in fiscal year 1989. Caretaker activities at the base and continuation of Air Force Reserve (AFRES) units and the Regional Corrosion Control Facility would still utilize a portion of the current demand. Base closure would result in an approximate decrease of 86 percent of the total water use; the remaining 14 percent or 46 million gallons annually would be used by the AFRES and the Regional Corrosion Control Facility. Base closure would, therefore, result in lower water demand on the Austin system, increasing the available water capacity for other urban users.

4.1.4.2 Wastewater Treatment

Bergstrom AFB contributes approximately 0.5 million gallons per day (MGD) to the Hornsby Bend Wastewater Treatment Plant. This amounts to about 75 percent of the plant's intake. With closure, substantial reductions in the base's contribution to the plant would occur. However, plans are under review to phase out this plant and it would therefore not be affected by base closure. The base was to switch to the South Austin Regional Wastewater Plant, which has a 40 MGD capacity; base closure would result in a minimal loss of expected wastewater volumes to this plant.

4.1.4.3 Solid Waste

The City of Austin would implement a baling operation that would extend the lifespan of the landfill only if the base remains open. If the base is closed, the City of Austin would not implement the baling operation, in which case the landfill lifespan would increase because of the solid waste reduction from the base, but not to the same extent as it would if baling operations were implemented.

4.1.4.4 Energy

Base closure would result in an estimated 85 percent drop in electricity consumption on the base from 65 million kilowatt-hours to 9.8 million kilowatt-hours for AFRES support. Because of projected yearly increases in the peak demand in the Austin service area, the closure of Bergstrom AFB should not adversely affect the City of Austin electric utility.

With base closure, gas usage onbase would decrease by 80 to 90 percent. The Reserve units would still require 18 to 35 million cubic feet of natural gas per year to continue operations. Current usage levels for the base represent 0.03 percent of the gas supplied by the Valero Transmission Company to the Austin area. Overall, closure of the base would have a minor beneficial effect by providing additional natural gas capacity to the Austin area.

4.2 HAZARDOUS MATERIALS/WASTE MANAGEMENT

4.2.1 Hazardous Materials Management

With base closure, hazardous materials used and stored at the Base Supply Storage Area and at the various industrial facilities throughout the base would be shipped and used elsewhere or sold as excess in accordance with applicable federal and state regulations. Hazardous materials collected during the base closure process would be disposed of through the Bergstrom AFB Defense Reutilization and Marketing Office (DRMO). A small amount of hazardous materials such as gasoline, oils, herbicides, and pesticides would continue to be stored and used onbase for maintenance of the base facilities during the caretaker period. Hazardous materials will continue to be used by the AFRES and Regional Corrosion Control Facility. A minor beneficial impact to public health, water resources, soils, and biological resources would result due to the inventory reduction and related reduced potential for spills, and limited use of hazardous materials on the base after closure.

Aboveground and Underground Storage Tanks. Closure of Bergstrom AFB would result in some of the base underground tanks being taken temporarily out of operation, upgraded, or closed. The Air Force would closely coordinate the disposition of underground storage tanks not required to support AFRES operations with the Environmental Protection Agency (EPA), Region VI, and the State of Texas. Accidental spills, fires, or explosions would be prevented when the abandoned aboveground tanks are emptied and purged prior to closure.

Pesticides/Herbicides. Chemicals used to control pest infestations and ground foliage would be necessary for maintenance activities on the base during the caretaker period; however, the amount of pesticides and herbicides stored and used during this period would be much smaller than that for normal operation of the base. Chemicals determined to be unnecessary for caretaker maintenance activities would be disposed of through the DRMO.

Other Hazardous Materials. All other hazardous materials, such as acids, compressed gases, and solvents, not needed for maintenance of the base until final disposition is determined would be shipped and used elsewhere or sold as excess in accordance with applicable federal and state regulations through the DRMO.

4.2.2 Hazardous Waste Management

All the waste stored at the base would be properly disposed of and all residual contamination would be remedied in accordance with an EPA Resource Conservation and Recovery Act-approved closure plan as more stringently modified by Texas state agencies. The hazardous waste accumulation points would be sampled and an assessment would be performed to determine whether any spills have occurred at any of these accumulation points. AFRES accumulation points would continue to operate.

4.2.3 Installation Restoration Program Sites

The Installation Restoration Program (IRP) will not be affected by base closure. The IRP is independent of the base closure process and will continue, as needed, after the military mission has been terminated. Through this program, the Air Force is committed to thoroughly investigate and remedy contaminated sites as needed. EPA Region VI, the State of Texas, and Travis County officials would be involved in Air Force decisions on the remediation of contaminated sites.

4.2.4 Asbestos

An asbestos survey is underway and will be completed before December 1992. Any asbestos found will be handled in accordance with the Air Force Policy on Management of Asbestos at Bases For

Which the General Services Administration is the Disposal Agent (see Appendix D). No effects are expected from base closure.

4.2.5 Polychlorinated Biphenyls

Current Tactical Air Command plans require that Bergstrom AFB be free of polychlorinated biphenyls (PCBs), i.e., concentrations must be 50 parts per million or less by September 1991. This process is not expected to be affected by base closure.

4.2.6 Radon

Upon completion of the Radon Assessment and Mitigation Program survey in May 1991, the Air Force will release the results from the year-long monitoring program. At that time, any remedial action will be taken in accordance with Air Force policy to minimize the effects of radon.

4.2.7 Radioactive Waste

The radioactive wastes contained in the waste cells at the radioactive disposal site at Bergstrom AFB would be handled in accordance with all local, state, and federal regulations as administered by the Nuclear Regulatory Commission under 10 CFR 20 and the EPA under 40 CFR 191. No effects are expected from base closure.

4.2.8 Ordnance

With base closure, some ordnance would be removed from the base according to Air Force policy. Although some ordnance would remain for use by the 924th TFG, the overall quantity of munitions would be reduced at Bergstrom AFB by 42,000 pounds net explosive weight. This reduction in storage would minimize the risks explosives present to people in the immediate area.

4.3 NATURAL ENVIRONMENT

4.3.1 Geology and Soils

4.3.1.1 Geology

The base closure would not affect the geology that underlies Bergstrom AFB, nor would it affect the federal government's access to strategic minerals resources if their occurrence is identified.

4.3.1.2 Soils

Base closure would have positive impacts on the base's soils because training, maintenance, and construction for new military missions would be reduced. The discontinuation of the current active-duty Air Force mission would significantly reduce the amount of new construction. This would allow the soil to retain its natural profile and would reduce the amount of soil erosion. The risk of soil contamination by spills or unintended releases of hazardous materials and/or wastes due to active military operations would also be reduced. However, because the 924th TFG would remain at the base, unintended releases of hazardous materials and contamination of soil during daily operations would still be a possibility.

4.3.2 Water Resources

4.3.2.1 Groundwater

Currently, no groundwater is drawn from the underlying aquifers for use on the base. However, the base is located on a majority of the recharge area for the shallow alluvial aquifer that is used on

adjacent land. Base closure would keep the current permeable surfaces undisturbed, thereby increasing the recharge rate of this aquifer.

4.3.2.2 Surface Water

Base closure would have a positive impact on the water quality in the area by diminishing potential and ongoing impacts to surface water quality. The cessation of active-duty operations would also significantly reduce the introduction of contaminants to stormwater runoff. Fuel and other hazardous chemical storage tanks would be emptied, and leaks from corroded tanks would be avoided. Because the IRP will continue, any historical and ongoing contamination sources will be identified and remediated.

The contents of the oil/water separators would be pumped out and decontaminated. Oils, volatiles, and aqueous and sludge areas including sand and grit removed from the oil/water separators would be tested for toxic contamination. Toxic materials would be disposed of in accordance with the applicable local, state, or federal regulations.

The overall demand for water for drinking, sanitation, irrigation, and industrial uses would be drastically reduced. In addition, the demand on the city's water facilities, which supply nearly all the base's water, would be reduced. However, because the base's demand on the city's water supply is minimal (less than 1%), the reduced demand would have little actual impact. Stormwater would still be routed to the streams that drain the base so that the current hydrology of these streams would be maintained.

4.3.3 Air Quality

The closure of Bergstrom AFB would substantially reduce pollutant emissions caused by base operations and motor vehicle traffic. The majority (54%) of base emissions (about 1,500 tons per year) result from aircraft flying operations. Base closure would reduce aircraft emissions by approximately 64 percent or over 500 tons per year. The remaining aircraft emissions are produced by the AFRES units and transient aircraft, which would continue to use the airfield after closure. The pollutants generated at the base are less than 1 percent of the regional pollutant emissions of 270,000 tons per year. Regional impacts, though positive, would be minimal.

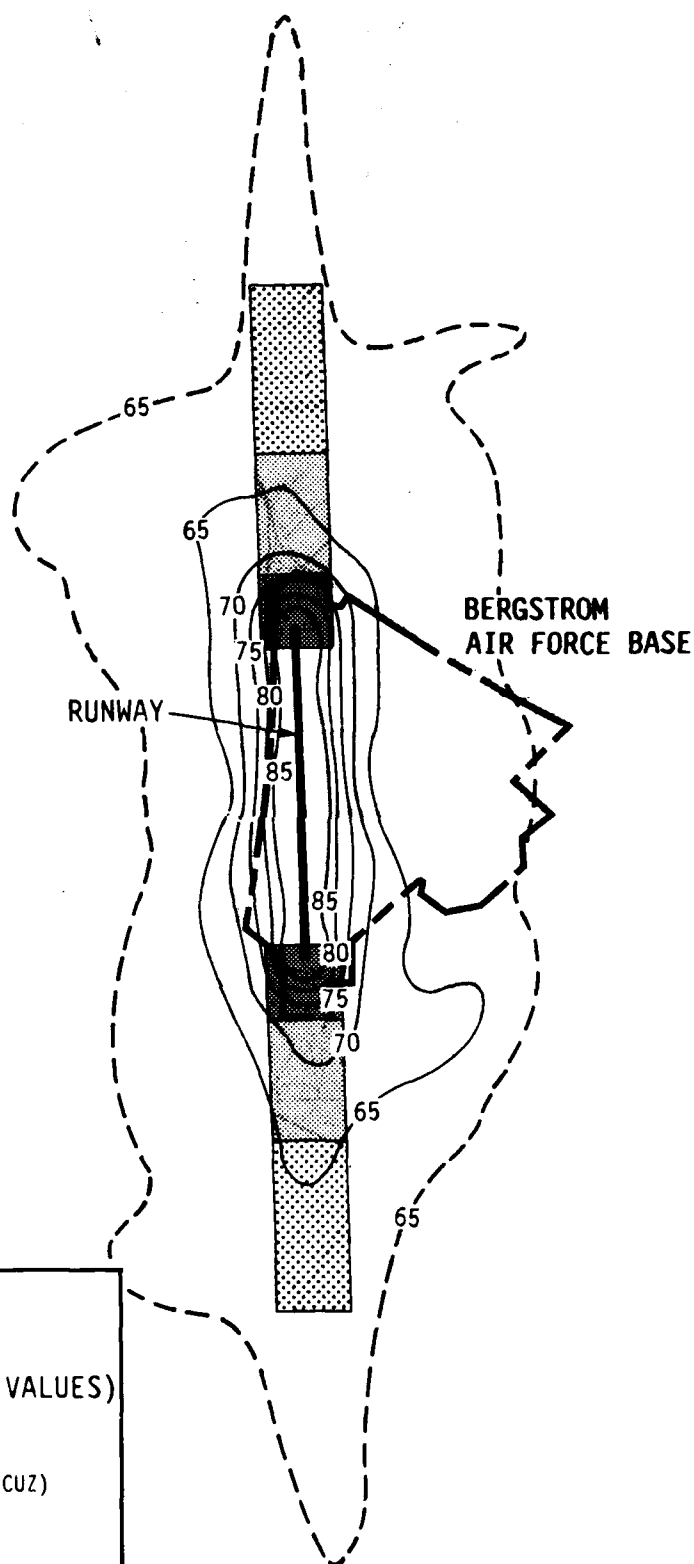
Pollutant emissions onbase from motor vehicles would be substantially reduced, which would reduce ozone levels. Continued emission sources, in addition to the 924th TFG, would include heating and the Regional Corrosion Control Facility. These sources are responsible for a small percentage of the base's total emissions and would not adversely affect the regional air quality.

4.3.4 Noise

Noise generation from daily base operations and motor vehicles would be substantially reduced after closure. Predictions from the Federal Highway Administration's STAMINA 2.0 noise model indicate that the day/night (L_{dn}) noise levels would be reduced by 2 to 3 decibels (dB) from the current levels of 62 to 64 dB along State Highway 71. This small reduction would not be detectable and the noise impacts, though beneficial, would be minimal. During the closure process, the movement of personnel and equipment may cause some noise increases; however, this would be a short-term impact.

After base closure, the 924th TFG would remain in place. These units would continue to use the airfield, but the total number of flights would be greatly reduced. Therefore, noise levels around the base would be substantially lower. In addition, in 1991, the 924th TFG will convert from the F-4E aircraft to the F-16A aircraft. Because the F-16A is quieter, this conversion will reduce noise levels and generate a smaller noise contour resulting in a reduction of about 11,000 acres from the 1987 L_{dn} 65 dB contour as shown in Figure 4.3.4-1.

ROBERT MUELLER
MUNICIPAL AIRPORT



LEGEND

- BASE BOUNDARY
- 65— NOISE CONTOURS (Ldn VALUES)
(PROPOSED F-16 OPERATIONS)
- 65--- NOISE CONTOURS
(RF-4C OPERATIONS, 1987 AICUZ)
- CLEAR ZONE
- ACCIDENT POTENTIAL ZONE 1
- ▨ ACCIDENT POTENTIAL ZONE 2



SCALE IN FEET
0 8448

FIGURE 4.3.4-1 COMPARISON OF 65 Ldn NOISE CONTOURS FOR RF-4C AND PROPOSED F-16 OPERATIONS, BERGSTROM AFB, TEXAS

4.3.5 Biological Resources

4.3.5.1 Vegetation

After base closure, a minimal maintenance plan would be implemented to maintain base facilities until they are reused. This maintenance plan would include continued, although less frequent, lawn mowing and hay cropping in areas near the runways. Plant communities over the majority of the base would remain essentially constant following base closure, with the possible exception of areas that are currently not maintained and/or would no longer be used in the same manner such as the grazing areas, recreation areas, and rifle ranges. These areas may be allowed to undergo natural succession toward a grassland habitat; however, they would not revert to their original prairie composition and structure because several exotic species dominate the area.

4.3.5.2 Wildlife

The withdrawal of military personnel and operations would have a positive impact on wildlife at the base. Although certain aspects of the wildlife management plan that would augment the habitat in selected areas of the base may not be implemented before closure, the lack of human activity would increase the quality of the habitat, especially for animals less tolerant of humans.

4.3.5.3 Wetlands

Base closure would have no effect on wetlands because closure would create no direct disturbance of wetlands and surface drainage patterns on base would not change. Without continual maintenance, the riverine system on base and the man-made ditches would become more heavily vegetated resulting in habitat improvement for reptiles and amphibians. This would be a positive impact.

4.3.5.4 Threatened and Endangered Species

No threatened and endangered species have been identified on the base; therefore, no adverse impacts from base closure would occur. Rather, this action may open some habitats, particularly those on and adjacent to the base, to threatened or endangered species that prefer this type of habitat.

4.3.6 Cultural and Paleontological Resources

4.3.6.1 Prehistoric Resources

Two potentially eligible sites have been identified on the base and test excavations will be needed to formally evaluate these sites for eligibility to the National Register of Historic Places (NRHP). NRHP nominations will need to be prepared prior to disposition of the property. A Memorandum of Agreement between the base, State Historic Preservation Officer, and Advisory Council on Historic Preservation should be prepared along with a mitigation plan indicating how the NRHP-eligible sites will be taken into account during reuse planning and development. Specific site treatments are negotiable and depend largely on local and regional issues, guidelines, and precedents. No known Native American sites have been identified on the base; therefore, impacts are not expected.

4.3.6.2 Historic Resources

No NRHP-eligible historic resources were identified at Bergstrom AFB. The Greenwood Cemetery is identified as a site but it is not historically significant. Cemeteries are listed among properties that ordinarily do not qualify for the NRHP (36 CFR 60.4). Religious properties may qualify for the National Register if their importance derives from architectural or artistic distinction or historical associations, but such a case cannot be made for the Greenwood Cemetery.

4.3.6.3 Paleontological Resources

Paleontological materials may be associated with the Marlbrook Marl; however, these fossils represent a marine invertebrate assemblage and are relatively common in the region. No impacts would occur to paleontological resources as a result of closure activities.

4.4 POTENTIAL MITIGATION MEASURES

The caretaker team would provide building, ground, and water supply system maintenance, and would provide adequate security. This would minimize potential environmental impacts until the base redevelopment is finalized.

4.5 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY OF THE ENVIRONMENT

The overall impacts to the natural environment from the closure of Bergstrom AFB would be beneficial in the short term. The long-term impacts are unknown because the future uses of the base have not been determined.

4.6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The resources irreversibly and irretrievably committed in the proposed base closure and realignment of units would be minimal. Some energy resources would be expended in moving realigned units and there would be some minor construction at the receiving bases to accommodate these units. Base closure would generally reduce the commitment of resources to defense programs.

5.0

CONSULTATION AND COORDINATION

The federal, state, and local agencies and private agencies/organizations that were contacted during the course of preparing this Environmental Impact Statement are listed below.

- Environmental Protection Agency, Region VI, Dallas, Texas (Ruth Tatom)
- U.S. Fish and Wildlife Service, Regional Director, Albuquerque, New Mexico (Allan Radcliffe)
- U.S. Fish and Wildlife Service, Ecological Services, Fort Worth, Texas (David A. Curtis)
- Federal Aviation Administration, Southwest Region, Fort Worth, Texas (Mo Kean)
- U.S. Geological Survey, Austin, Texas (Ernie Baker)
- Texas Parks and Wildlife Department, Austin (Floyd Potter)
- Texas Air Control Board, Austin (Al Langley, Roger Laprelle, personal communication, April 1990)
- Texas Water Development Board, Austin (Charlotte Schwartz, personal communication, April 1990)
- Texas Parks and Wildlife Department, Austin (Dorinda Sullivan, personal communication, July 1990)
- Texas Indian Commission, Austin (Ray Apodaca)
- Texas Historical Commission, Austin (James E. Bruseth)
- City of Austin, Department of Environment and Conservation (John Parish, personal communication, April 1990)
- City of Austin, Planning Department (Liz Badger, personal communication, April 1990)
- City of Austin, Water and Wastewater Department (Mike Erdman, personal communication, May 1990)
- City of Austin, Electric Department, System Engineering and Control (Sam Jones, personal communication, May 1990)
- Del Valle Independent School District (Larry Mendoza, personal communication, May 1990)
- Valero Transmission Company, Austin (Lonny Grady, personal communication, April 1990)
- Bergstrom Air Force Base, Texas (personal communications with Lieutenant Colonel Riggs, Tim Knapp, Mary Tom Kissell, Captain Dietz, Gloria Goode, Colonel Steiger, and Lieutenant Colonel Sutemeier)

6.0 LIST OF PREPARERS

Will C. Ballard, Environmental Planner, Woolpert Consultants
B.G.S., 1987, Environmental Studies, University of Kansas, Lawrence
M.U.P., 1989, Urban Planning, University of Kansas, Lawrence
Years of Experience: 3

Tom Bartol, Lieutenant Colonel, U.S. Air Force, Director,
Programs and Environmental, AFRCE-BMS/DEP
B.S., 1972, Civil Engineering, U.S. Air Force Academy, Colorado Springs, Colorado
M.S., 1980, Management, Purdue University, Indiana
Years of Experience: 17

Bryan J. Bodner, Captain, U.S. Air Force, AFRCE-BMS/DEPR
BSCE, 1982, Civil Engineering, University of Florida, Gainesville
MSCE, 1987, Structures, University of Texas, Austin
Years of Experience: 8

Charles J. Brown, Captain, U.S. Air Force
BET, 1977, Civil Engineering, University of North Carolina, Charlotte
B.A., 1987, Business Administration, University of North Carolina, Charlotte
Years of Experience: 9

William R. Brownlie, Vice-President, Tetra Tech, Inc.
B.S., 1975, Civil Engineering, State University of New York, Buffalo
M.S., 1976, Civil Engineering, Hydraulics and Water Resources, State University of New York,
Buffalo
Ph.D., 1981, Civil Engineering, Hydraulics, California Institute of Technology, Pasadena
Years of Experience: 15

Susan L. Bupp, Archaeologist, Tetra Tech, Inc.
B.A., 1977, Anthropology, Wichita State University, Kansas
M.A., 1981, Anthropology, University of Wyoming, Laramie
Years of Experience: 13

Stephanie Calderone, Environmental Scientist, Tetra Tech, Inc.
B.S., 1985, Urban Horticulture, Arizona State University, Tempe
M.S., 1989, Soil Science, University of California, Riverside
Years of Experience: 3

David Carmichael, Senior Archaeologist, Tetra Tech, Inc.
B.A., 1974, Anthropology, University of New Mexico, Albuquerque
M.A., 1976, Anthropology, University of Illinois, Urbana
Ph.D., 1983, Anthropology, University of Illinois, Urbana
Years of Experience: 15

John Dale Clark, Project Manager, Captain, U.S. Air Force, AFRCE-BMS/DEPV
M.S., 1989, Civil Engineering, North Carolina State University, Raleigh
B.S., 1982, Civil Engineering, Auburn University, Alabama
Year of Experience: 8

Doug Cole, Planner, U.S. Air Force, AFRCE
B.A., 1978, Economics/Geography, California State University, San Bernardino
Years of Experience: 12

Pat Czeiszperger, Land Use Planner, Woolpert Consultants
B.A., 1988, Urban Affairs, Wright State University, Dayton, Ohio
Years of Experience: 2

Charles R. Everett, Transportation Planner, Woolpert Consultants
B.A., 1984, Urban Studies/Transportation Planning, University of Pennsylvania, Philadelphia
Years of Experience: 6

Patricia Haldorsen, Quality Control Coordinator, Tetra Tech, Inc.
B.A., 1982, English Literature, California State University, San Bernardino
Years of Experience: 8

Glen Hamner, Planner Architect, U.S. Air Force, AFRCE-BMS/DEPR
B.A., 1972, Architecture, Auburn University, Alabama
Years of Experience: 22

Frederick S. Hickman, Principal Social Scientist, Tetra Tech, Inc.
B.A., 1966, Economics, Drew University, Madison, New Jersey
M.A., 1974, Economics, Rutgers-the State University, New Brunswick, New Jersey
A.B.D., Economics, Rutgers-the State University, New Brunswick, New Jersey
Years of Experience: 21

Robert Hook, Environmental Scientist, Woolpert Consultants
B.A., 1978, Biology, Thomas Moore College, Fort Mitchell, Kentucky
M.S., 1984, Biology, Eastern Kentucky University, Richmond
Years of Experience: 4

Kathe Houk, Aviation Planner, Woolpert Consultants
B.A., 1973, Journalism, Purdue University, West Lafayette, Indiana
M.P.A., 1982, Public and Environmental Affairs, Indiana University
Years of Experience: 8

Karenlee Kneller, Environmental Scientist, Woolpert Consultants
B.S., Biological Sciences, Ohio State University, Columbus
Ph.D., Limnology, University of Toledo, Ohio
Years of Experience: 12

A. Carlos Landaburu, Environmental Scientist, Woolpert Consultants
B.S., 1975, Biology, University of Buenos Aires, Argentina
M.C.R.P., 1985, City and Regional Planning, Ohio State University, Columbus
Ph.D., 1981, Terrestrial Ecology, University of Buenos Aires, Argentina
Years of Experience: 16

George H. Ledbetter, Major, U.S. Air Force, AFRCE-BMS/DES
B.S., 1973, Mathematics, University of Georgia, Athens
M.A., 1978, Public Administration, Webster College, St. Louis, Missouri
J.D., 1983, Law, University of Texas, School of Law, Austin
LL.M., 1988, Master of Environmental Laws, National Law Center, The George Washington University, Washington, DC
Years of Experience: 14

John W. Lynch, P.E., Project Manager, U.S. Air Force, AFRCE-BMS/DEPV
M.S., 1986, Civil Engineering, University of Notre Dame, South Bend, Indiana
B.S., 1982, Civil Engineering, University of Notre Dame, South Bend, Indiana
Years of Experience: 8

Jim Maguire, Project Manager, Woolpert Consultants
B.S., 1969, Business Administration, Drake University, Des Moines, Iowa
M.A., 1973, Education, Ohio State University, Columbus
Years of Experience: 17

Raj B. Mathur, Associate Director and Project Manager, Tetra Tech, Inc.
B.A., 1957, Geography, Punjab University, India
M.A., 1960, Economics, Punjab University, India
Ph.D., 1972, Geography, University of Minnesota, Minneapolis
Years of Experience: 28

Jay McCain, Attorney-Advisor, U.S. Air Force, AFRCE-BMS/DES
B.A., 1965, Chemistry, University of Washington, Seattle
J.D., 1977, University of Puget Sound, Tacoma
Years of Experience: 13

William B. Moreland, Senior Scientist, Air Quality, Tetra Tech, Inc.
B.A., 1948, Meteorology, University of California, Los Angeles
M.A., 1953, Meteorology, University of California, Los Angeles
Years of Experience: 41

Paul U. Pawlik, Economist, U.S. Air Force, AFRCE-BMS/DEPV
B.A., 1965, Business Administration, North Central College, Naperville, Illinois
M.A., 1967, Economics, Roosevelt University, Chicago, Illinois
Ph.D., 1972, Economics, University of Arizona, Tucson
Years of Experience: 20

Andrea Purdy, Planner/Intern, Woolpert Consultants
B.U.P., To be awarded in 1991, Urban Planning, University of Cincinnati, Ohio

Sharon Rozier, Urban Planner, Woolpert Consultants
B.U.P., 1984, Urban Planning, University of Cincinnati, Ohio
Years of Experience: 6

John R. Sabol, Environmental Engineer, U.S. Air Force, AFRCE-BMS/DEPV
B.S.C.E, 1958, Civil Engineering, Lafayette College, Easton, Pennsylvania
J.D., 1972, Western State University, College of Law, Anaheim, California
Graduated 1982, Air War College, Air Force University,
Maxwell Air Force Base, Alabama

Years of Experience: 35

John K. Sollid, Chief Environmental Protection Branch, AFRCE-BMS/DEPV
B.Arch., 1968, Architecture, Tulane University, New Orleans, Louisiana

Years of Experience: 18

Wendy Thornton, Geologist/Geohydrologist, Woolpert Consultants
B.A., 1985, Geology/Geography, University of Colorado, Boulder
M.B.S., 1987, Geology, University of Colorado, Boulder

Years of Experience: 3

Ted R. Turk, Associate Director, Tetra Tech, Inc.
B.A., 1970, Biology, Williams College, Williamstown, Massachusetts
Ph.D., 1978, Ecology, University of California, Riverside and San Diego State University
Years of Experience: 12

Mary Vroman, Major, U.S. Air Force, Deputy, Programs and Environmental,
AFRCE-BMS/DDEP

B.S., Engineering Operations, Iowa State University
M.S., Engineering Management, Air Force Institute of Technology

Years of Experience: 12

7.0 REFERENCES

Austin, City of

1986 *Austinplan, City of Austin Planning and Growth Management Department.* Texas

1987 *Austinplan, Background Information.* Texas.

1990a *Feasibility Study for Bergstrom Air Force Base as a Commercial Airport.* Department of Aviation Inventory Report, Texas.

1990b *Feasibility Study of Bergstrom Air Force Base as a Commercial Airport: Inventory Report.* Department of Aviation, Texas.

Bolt, Beranek, and Newman, Inc.

1973 *Fundamentals and Abatement of Highway Traffic Noise.* Canoga Park, California.

Boyer, Richard and David Savageau

1989 *Places Rated Almanac.* Prentice Hall Press, New York.

CH₂M Hill

1983 *Installation Restoration Program Records Search for Bergstrom AFB, Texas.* Gainesville, Florida.

Chilton, P.B.

1987 *Management of Hazardous Waste Plan 19-1 for Bergstrom AFB.*

Code of Federal Regulations

1978 *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.* Council on Environmental Quality, 40 CFR 1500-1508, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, D.C.

1987a *National Primary Drinking Water Regulations.* U.S. Environmental Protection Agency, 40 CFR 141, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, DC.

1987b *National Secondary Drinking Water Regulations.* U.S. Environmental Protection Agency, 40 CFR 143, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, DC.

1987c *National Register of Historic Places; Criteria for Evaluation.* U.S. Department of the Interior, 36 CFR 60.4, Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office, Washington, DC.

Del Valle School District

1990 *Del Valle ISD Newsletter.* Austin, Texas.

Entech Inc.

1984 *Plan 115 Spell Prevention and Response Plan, Bergstrom AFB.*

1989a *Draft Hazardous Waste Management Plan for Bergstrom AFB.* Alexandria, Virginia.

1989b *Draft Hazardous Waste Survey Bergstrom AFB, Texas.* Marietta, Georgia.

1989c *Draft Underground Storage Tank Management Plan.* Alexandria, Virginia.

Environmental Assessment and Information Systems

1989 *Environmental Compliance Assessment and Management Program (ECAMP) Report: Preliminary Experimental Findings for Bergstrom AFB, Austin, Texas.*

Federal Interagency Committee for Wetland Delineation

1989 *Federal Manual for Identifying and Delineating Jurisdictional Wetlands.* U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Services, and U.S. Department of Agriculture Soil Conservation Service, Washington, DC. Cooperative technical publication.

Galloway, W.J. and T.J. Schultz

1980 *Interim Noise Assessment Guidelines.* U.S. Department of Housing and Urban Development, Washington, DC.

Harris, A.S. and R.L. Miller

1977 *Airport Noise Seminars.* Documentation prepared for the Airports Division, Southern Region, Federal Aviation Administration, November.

Kissel, Mary Tom

1990 Bergstrom AFB, personal communication, April 3.

Knapp, Tim

1990 Bergstrom AFB, Department of Civil Engineering, personal communication, April 2.

Matthews, William H. III

1960 *Texas Fossils: An Amateur Collector's Handbook.* Bureau of Economic Geology, Guidebook 2, University of Texas, Austin.

McDaniel, Harry R.

1986 Bergstrom AFB Civil Engineer, personal communication, June 13.

Radian Corporation

1989 *Installation Restoration Program RI/FS Stage II Draft Technical Report for Bergstrom AFB, Volume I.*

Rand McNally and Company

1988 *Handy Railroad Atlas of the United States.*

1989 *Road Atlas 1989.*

Sellards, E.H., W.S. Adkins, and F.B. Plummer

1932 *The Geology of Texas. Volume I Stratigraphy.* The University of Texas Bulletin No. 3232, Bureau of Economic Geology, University of Texas, Austin.

Soil Conservation Service

1989 *Soil Survey of Travis County, Texas.* Austin, Texas.

Texas Department of Aviation

1990 *Feasibility Study of Bergstrom Air Force Base.*

Transportation Research Board

1978 *Quick-Response Urban Travel Estimation Techniques and Transferable Parameters User's Guide*. National Cooperative Highway Research Program, Report 187, National Research Council, Washington, DC.

1985 *Highway Capacity Manual Special Report 209*. National Research Council, Washington, DC.

U.S. Air Force

1981 *Air Force Regulation 86-14, Airfield and Heliport Planning Criteria*.

1987a *Air Installation Compatible Use Zone (AICUZ)*. Bergstrom Air Force Base, Austin, Texas.

1987b *Air Installation Compatible Use Zone Study*. Bergstrom Air Force Base, Austin, Texas.

1989a *TAC-DEM (m) 7404 FY 89 Electrical Service for Main Base and Housing, Bergstrom AFB, TX*.

1989b *TAL-DEM (m) 7404 FY 89 Recap of Gas Service Contract, Bergstrom AFB, TX*.

1989c *TAC-DEM (m) 7404, FY 89 Recap of Water and Wastewater Service Contracts, Bergstrom AFB, TX*.

1990 *Bergstrom AFB Air Pollution Emissions Inventory, 1986*.

U.S. Army Corps of Engineers

1987 *Corps of Engineers Wetland Delineation Manual*. Environmental Laboratory, Vicksburg, Mississippi.

U.S. Bureau of the Census

1988 *County and City Data Book*. U.S. Government Printing Office, Washington, DC.

U.S. Department of Housing and Urban Development

1985 *The Noise Guidebook*. Washington, DC.

U.S. Environmental Protection Agency

1971 *Community Noise*. Wylie Laboratories, Washington, DC.

1985 *Compilation of Air Pollutant Emission Factors, AP-42 Emissions*. Vols. I and II, 4th edition. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

1990 *Travis County, Texas, Air Emissions Inventory, 1986*. National Emissions Data Systems.

U.S. Fish and Wildlife Service

1984 *Endangered and Threatened Species on U.S. Air Force Installations*. Washington, DC.

1985a *Endangered and Threatened Wildlife and Plants; Review of Vertebrate Wildlife; Notice of Review*, *Federal Register* 50 (181):37958-37959, Washington, DC.

1985b Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review, *Federal Register* 50 (188):39526-39527, Washington, DC.

Whitehead, Dawn

1986 *Fish and Wildlife Management Plan for Bergstrom Air Force Base, Texas: Initial Plan for 1 January 1986-31 December 1990.* U.S. Fish and Wildlife Service, Slidell, Louisiana.

Whitsett, Hayden and Daniel E. Fox

1979 *Cultural Resources of Lower Onion Creek.* Texas Department of Water Resources, Construction Grants and Water Quality Planning Division.

APPENDIX A - GLOSSARY OF TERMS AND ACRONYMS

TERMS

Accident Potential Zones (APZ). Areas immediately beyond the ends of Department of Defense fixed-wing runways that have a higher potential for aircraft accidents than other areas. Specifically, APZs fall into two categories: APZ 1 is the area beyond the runway clear zone that possesses a significant potential for accidents, and APZ 2 is an area beyond APZ 1 that has a measurable potential for accidents.

Active Fault. A fault on which movement has occurred during the past 10,000 years and which may be subject to recurring movement usually indicated by small, periodic displacement or seismic activity.

Air Installation Compatible Use Zone. A concept developed by the Air Force to promote land use development near its airfields in a manner that protects adjacent communities from noise and safety hazards associated with aircraft operations, and to preserve the operational integrity of the airfields.

Alluvium. A general term applied to sediments deposited by a stream or running water.

Ambient Air Quality Standards. Standards established on a state or federal level that define the limits for airborne concentrations of designated "criteria" pollutants (nitrogen dioxide, sulfur dioxide, carbon monoxide, total suspended particulates, ozone, and lead) to protect public health with an adequate margin of safety (primary standards) and to protect public welfare, including plant and animal life, visibility, and materials (secondary standards).

Aquifer. The water-bearing portion of subsurface earth material that yields or is capable of yielding useful quantities of water to wells.

Archaeology. A scientific approach to the study of human ecology, cultural history, and cultural process.

Attainment Area. An area that has been designated by the Environmental Protection Agency and the appropriate state air quality agency as having ambient air quality levels below the ceiling levels defined under the National Ambient Air Quality Standards.

Average Annual Daily Traffic. For a 1-year period, the total volume passing a point or segment of a highway facility in both directions, divided by the number of days in the year.

Bedrock. Geologic formation or unit which underlies soil or other unconsolidated surficial deposits.

Clear Zone. The area surrounding a runway where the aircraft accident risk is high enough that necessary land use restrictions would prohibit reasonable economic use of the land.

Climate. The prevalent or characteristic meteorological conditions (and their extremes) of any given location or region.

Comprehensive Plan. A public document, usually consisting of maps, text, and supporting materials, adopted and approved by a local government legislative body, which describes future land uses, goals, and policies.

Cumulative Impacts. The combined impacts resulting from all programs occurring concurrently at a given location.

Dolomite. A general term applied to sedimentary rocks composed of calcium and magnesium carbonate.

Earthquake. A sudden motion or trembling in the earth caused by the displacement of rocks below the earth's surface due to a release of strain.

Effluent. Wastewater discharge from a wastewater treatment facility.

Endangered Species. A species that is threatened with extinction throughout all or a significant portion of its range.

Environmental Impact Analysis Process. The process of conducting environmental studies as outlined in Air Force Regulation 19-2.

Escarpment. A long cliff or steep slope separating two comparatively level or more gently sloping surfaces; results from erosion or faulting.

Fault. A fracture or zone of fractures along which there has been movement of the sides relative to one another and parallel to the fracture.

Fault Zone. An area or region that is expressed as a zone of numerous fractures or faults.

Federal-Candidate Species. Plant and wildlife species in federal Categories 1 and 2 by the U.S. Fish and Wildlife Service which are candidates for possible addition to the List of Endangered and Threatened Species.

Floodplain. The relatively flat land lying adjacent to a river channel that is covered by water when the river overflows its banks.

Geologic Hazard. A naturally occurring or man-made geologic condition or phenomenon that presents a risk or is a potential danger to life and/or property.

Hazardous Materials. Both nonradioactive (e.g., missile propellants and diesel fuel) and radioactive materials.

Hazardous Waste. A waste, or combination of wastes, which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Historic. A period of time after the advent of written history dating to the time of first Euro-American contact in an area. Also refers to items primarily of Euro-American manufacture.

Hydrology. The science dealing with the properties, distribution, and circulation of water on the surface of the land and in the soil and underlying rocks.

Impact. An assessment of the meaning of changes in all attributes being studied for a given resource; an aggregation of all the adverse effects, usually measured using a qualitative and nominally subjective technique.

L_{Δ} Noise Level. The 24-hour average-energy sound level expressed in decibels, with a 10-decibel penalty added to sound levels between 10:00 P.M. and 7:00 A.M.

Level of Service. In transportation analyses, a qualitative measure describing operational conditions within a traffic stream and how they are perceived by motorists and/or passengers. In public services, a measure describing the amount of public services (e.g., fire protection and law enforcement services) available to community residents, generally expressed as the number of personnel providing the services per 1,000 population.

Mercalli Scale. An arbitrary scale of earthquake intensity ranging from I for an earthquake detected only by seismographs to XII for one causing total destruction of all buildings.

Military Operating Area (MOA). An airspace assignment of defined vertical and lateral dimensions established outside positive control areas to separate or segregate certain military activities from instrument flight rules (IFR) traffic and to identify for visual flight rules (VFR) traffic where these activities are conducted.

Military Training Route (MTR). Airspace of defined vertical and lateral dimensions established for the conduct of military flight training at airspeeds in excess of 250 knots.

Miocene. An epoch of the Tertiary period, 24 million to 5 million years ago, marked by the development of apes and the appearance of ancestral gibbons.

Mitigation. A method or action to reduce or eliminate program impacts.

National Register of Historic Places. A register of districts, sites, buildings, structures, and objects important in American history, architecture, archaeology, and culture, maintained by the Secretary of the Interior under authority of Section 2(b) of the Historic Sites Act of 1935 and Section 101(a)(1) of the National Historic Preservation Act of 1966, as amended.

Native Americans. Used in a collective sense to refer to individuals, bands, or tribes who trace their ancestry to indigenous populations of North America extant to Euro-American contact.

Net Explosive Weight. Weight of the explosives exclusive of casings and other protective materials in the munitions.

Nonattainment Area. An area that has been designated by the Environmental Protection Agency and the appropriate state air quality agency as exceeding one or more National Ambient Air Quality Standards.

Paleontological Resources. Fossilized organic remains from past geological periods.

PicoCurie. One trillionth of a curie, the unit used in measuring radioactivity.

Prehistoric. The period of time before the written record, and before Europeans entered an area.

Prime Farmland. Land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary of Agriculture (Farmland Protection Policy Act, 7 CFR § 658).

Quaternary. A geologic period representing the last 1.6 million years of earth's history which includes the Pleistocene and Holocene (Recent) epochs.

Restricted Area. Airspace designated under FAR Part 73 within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Restricted Areas are designated when determined necessary to confine or segregate activities considered to be hazardous to nonparticipating aircraft.

Riparian. Of or relating to land lying immediately adjacent to a water body, and having specific characteristics of that transitional area (e.g., riparian vegetation).

Soil. A natural body consisting of layers or horizons of mineral and/or organic constituents of variable thickness and differing from the parent material in their morphological, physical, chemical, and mineralogical properties, and biological characteristics.

State Historic Preservation Officer. The official within each state, authorized by the state at the request of the Secretary of the Interior, to act as liaison for purposes of implementing the National Historic Preservation Act.

State-Sensitive/State-Recognized Species. Plant and wildlife species in each state that are monitored and listed for purposes of protection.

Terrace. A flat portion of land created when a stream or river cuts farther into its channel and migrates laterally to a different location. In river valleys, they typically represent former levels of the valley floodplain.

Tertiary. The first period of the Cenozoic era extending between 66 million and 1.6 million years ago.

Threatened Species. Plant and wildlife species likely to become endangered in the foreseeable future.

Unique and Sensitive Habitats. Areas that are especially important to regional wildlife populations or protected species that have other important biological characteristics (e.g., severe wintering habitats, nesting areas, and wetlands).

Wetlands. Areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil, including swamps, marshes, bogs, and similar areas.

Zoning. The division of a municipality (or county) into districts for the purpose of regulating land use, bulk of building, required yards, necessary off-street parking, and other prerequisites to development. Zones are generally shown on a map and the text of the zoning ordinance specifies requirements for each zoning category.

ACRONYMS

ADT	Average Daily Traffic
AFB	Air Force Base
AFR	Air Force Regulation
AFRES	Air Force Reserves
AICUZ	Air Installation Compatible Use Zone
APZ	Accident Potential Zone
ARSA	Airport Radar Service Area
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
CZ	Clear Zone
DEIS	Draft Environmental Impact Statement
DEQPPM	Defense Environmental Quality Program Policy Memorandum
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
EAC	President's Economic Adjustment Committee
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ETJ	Extraterritorial Jurisdiction
FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
FY	Fiscal Year
GSA	General Services Administration
HQ	Headquarters
HUD	Department of Housing and Urban Development
IFR	Instrument Flight Rules
IHWSA	Interim Hazardous Waste Storage Area
IRP	Installation Restoration Program
JP-4	Jet Petroleum (Grade 4)
LCRA	Lower Colorado River Authority
LOS	Level of Service
LPG	Liquefied Petroleum Gas
MAC	Military Airlift Command
MOA	Military Operating Area
MOGAS	Automotive Gasoline
MSL	Mean Sea Level
NEPA	National Environmental Policy Act
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OEA	Office of Economic Adjustment
OSHA	Occupational Health and Safety Act
POL	Petroleum, Oil, and Lubricants
QD	Quantity-Distance
RAMP	Radon Assessment and Mitigation Program
RCRA	Resource Conservation and Recovery Act
SAC	Strategic Air Command
SARA	Superfund Amendments and Reauthorization Act
STAMINA	Standard Method in Noise Analysis
TAC	Tactical Air Command

TACS	Tactical Air Control Squadron
TAIRCG	Tactical Air Control Group
TFG	Tactical Fighter Group
TRS	Tactical Reconnaissance Squadron
TRTS	Tactical Reconnaissance Training Squadron
TRW	Tactical Reconnaissance Wing
TSD	Treatment, Storage, and Disposal
TSP	Total Suspended Particulates
TTS	Tactical Training Squadron
TWC	Texas Water Commission
USC	United States Code
UST	Underground Storage Tank
VFR	Visual Flight Rules
VTC	Valero Transmission Company

UNITS OF MEASUREMENT

dB	decibel
dBA	decibel on the A-weighted scale
L_{dn}	day/night equivalent noise level
MGD	million gallons per day
MVA	megavolt-ampere
MW	megawatt
PM_{10}	particulate matter (less than 10 microns in diameter)
ppm	parts per million
$\mu\text{g/l}$	micrograms per liter

CHEMICAL ABBREVIATIONS

CO	Carbon Monoxide
DCE	Dichloroethylene
HC	Hydrocarbons
O_3	Ozone
NO_x	Nitrogen Oxide
NO_2	Nitrogen Dioxide
PCB	Polychlorinated Biphenyls
SO_x	Sulfur Oxide
SO_2	Sulfur Dioxide
TCE	Trichloroethylene
VOC	Volatile Organic Compounds

APPENDIX B - RECORD OF PUBLIC NOTIFICATION

As part of the scoping process, the Air Force conducted a series of meetings to determine the issues and concerns that should be identified in the Environmental Impact Statement (EIS) for the proposed closure of Bergstrom Air Force Base, Texas. The Air Force notified the public of both the scoping meeting and the preparation of the EIS through a Notice of Intent (NOI) published in the *Federal Register* on 9 February 1990. A copy of the NOI follows.

NOTICE OF INTENT
TO PREPARE ENVIRONMENTAL IMPACT STATEMENTS
BERGSTROM AIR FORCE BASE, TEXAS

The United States Air Force intends to study the closing of Bergstrom AFB, Texas by the end of FY 1993 as a result of force structure changes. As part of that study process, the Air Force will prepare two Environmental Impact Statements (EISs) for use in decision-making regarding the proposed closure and final disposition/reuse of property at Bergstrom AFB.

The first environmental impact statement (EIS) will be prepared to assess the potential environmental impact of the possible closure of Bergstrom AFB. The EIS will discuss the potential environmental impacts of withdrawing RF-4C reconnaissance aircraft and realigning them to other units. It will also discuss the relocation of Headquarters 12th Air Force with its associated units and the 4500th School Squadron (Detachment 2) to Davis Monthan AFB, Arizona and the 712th Air Support Operations Squadron to a location to be determined. Active duty Air Force tenant units not inactivated would also be relocated. The EIS will also analyze the no action alternative to closing Bergstrom AFB. Air Reserve functions including Headquarters 10th Air Force and the 924th Tactical Fighter Group currently at Bergstrom will not be considered for relocation.

The reuse EIS will only be completed if there is a final decision to close the base. This EIS would cover the final disposition of excess property. All excess property would be disposed of in accordance with provisions of Public Law, federal property disposal regulations and Executive Order 12512.

The Air Force is planning to conduct a series of scoping meetings to determine the issues and concerns that should be addressed in the two EISs. Notice of the time and place of the planned scoping meetings will be made available to public officials and announced in the news media in the areas where the meetings will be held.

To assure the Air Force will have sufficient time to consider public inputs on issues to be included in the development of the first EIS, comments should be forwarded to the addressee listed below by March 15, 1990. However, the Air Force will accept comments to the addressee below at any time during the environmental impact analysis process.

For further information concerning the study of Bergstrom AFB for possible closure and EIS activities, contact:

Director of Environmental Planning
AFRCE-BMS/DEP
Norton AFB, San Bernardino CA 92409-6448

APPENDIX C - DRAFT ENVIRONMENTAL IMPACT STATEMENT MAILING LIST

ELECTED OFFICIALS

Federal Officials

U.S. Senate

Senator Lloyd Bentsen
Senator Phill Gramm

U.S. House of Representatives

Congressman J.J. Pickle

State Officials

Governor

The Honorable William Clements
Governor

The Honorable William P. Hobby
Lieutenant Governor

State Senate

Senator Gonzalo Barrientos

House of Representatives

Representative Wilhelmina Delco
Representative Lena Guerrero
Representative Gib Lewis
Representative Libby Linebarger
Representative Bob Richardson
Representative Terral Smith

Local Officials

Austin City Council

The Honorable Lee Cooke
Mayor of Austin, Texas

PUBLIC AGENCIES

Federal Agencies

Drew Albritten
Office of Intergovernmental Relations
Department of Housing and Urban
Development
Washington, DC

Ed Arnold
Veterans Administration
Washington, DC

James M. Bayne, Chief
Real Property Management Branch
National Aeronautics and Space
Administration
Washington, DC

Paul Colbern
Office of Legal Policy
Department of Justice
Washington, DC

Cecil Coleman
Division of Acquisition and Grants
Department of the Interior
Washington, DC

Joel Feinglass, Director
Division of Assistance Policy
Department of Health and Human Services
Washington, DC

Thomas Fleming
Office of Program Initiatives
General Services Administration
Washington, DC

Mo Keane
Federal Aviation Administration
Southwest Region,
Fort Worth, Texas

Barry Kennedy
U.S. Army Corp of Engineers
Washington, DC

Mary Anne T. Knauss
Deputy Assistant Secretary for
Intergovernmental Affairs
Department of Commerce
Washington, DC

Allen T. Maurer
Department of Veterans Affairs
Washington, DC

Michael McCurry
Department of the Interior
Office of Aircraft Services
Boise, Idaho

Frederick L. Meadow, Chief
Grants Policy & Procedures Branch
Environmental Protection Agency
Washington, DC

John W. Merck
Deputy Associate Director
Planning & Communications Management
Division
Office of Management & Budget
Washington, DC

Claudia Nissley, Director
Western Office of Project Review
Advisory Council on Historic Preservation
Golden, Colorado

Dr. Robert M. Rauner, Director
Office of Economic Adjustment
Department of Defense
Washington, DC

Frank P. Rowan
Real Estate & Building Department
U.S. Postal Service
Washington, DC

Martin Teckler, Associated General
Counsel for Legislation
Small Business Administration
Washington, DC

Charles Ventura, Chief
Grants Management Division
Department of Transportation
Washington, DC

Richard Whitney
Special Assistant
Intergovernmental Affairs
Department of Labor
Washington, DC

Department of Agriculture
Forest Service
Environmental Coordination Office
Washington, DC

Department of Housing and Urban
Development
Fort Worth, Texas

Department of the Interior
Bureau of Indian Affairs
Albuquerque, New Mexico

Department of the Interior
Bureau of Land Management
Santa Fe, New Mexico

Department of the Interior
Fish & Wildlife Service
Albuquerque, New Mexico

Department of the Interior
National Park Service
Southwest Region, Santa Fe, New Mexico

Environmental Protection Agency, Region VI
Dallas, Texas

General Services Administration
Regional Offices of Real Estate Sales
Region 7
Fort Worth, Texas

National Forest Service
Region 3, Southwestern
Albuquerque, New Mexico

Texas State Agencies

Thomas C. Adams
Office of Budget and Planning
State Point of Contact
Office of the Governor, Austin

Ray Apodaca
Executive Director
Texas Indian Commission
Austin, Texas

Jerry Bailey
TRACS Coordinator
Texas Department of Commerce, Austin

Peggy L. Belcher
TRACS Coordinator
Texas Department of Health, Austin

Joann Bennett
TRACS Coordinator
Texas Department of Human Services, Austin

Ken Bohuslav
TRACS Coordinator
Texas State Department of Highways and
Public Transportation, Austin

Dr. James Bruseth
Texas Historical Commission, Austin

David Meeseey
TRACS Coordinator
Texas Water Commission, Austin

Cril Payne
Railroad Commission, Austin

Rhonda J. Taylor
Texas Air Control Board, Austin

Texas Department of Aviation, Austin

State Historic Preservation Office

Curtis Tunnell
Executive Director
State Historic Preservation Officer
Texas Historical Commission, Austin

LIBRARIES

Texas State Library, Austin

Austin City Library

OTHER ORGANIZATIONS

Dede Armentrout, Vice President
Southwest, National Audubon Society,
Austin, Texas

Richard Bean
Capitol Area Planning Council, Austin

Beth Johnson, Southern Plains
Representative, The Sierra Club,
Dallas, Texas

Gene G. Stout
National Wildlife Federation, Region 8
Lawton, Oklahoma

Bruce Thompson, President,
Wildlife Society Texas Chapter, Austin

National Audubon Society
New York, New York

National Wildlife Federation
Washington, DC

Native Plant Society of Texas, Decatur

The Nature Conservancy
Arlington, Virginia

The Nature Conservancy
Southeast Regional Office
Chapel Hill, North Carolina

The Sierra Club
San Francisco, California

Sportsmen's Club of Texas, Inc., Austin

Texas Committee on Natural Resources, Dallas

Texas Forestry Association, Lufkin

Other Individuals Who Requested the Draft Environmental Impact Statement

Charles Akins	Bob Larson
Estar Johnnie Anderson	Daniel Lee
Shelly Ansbach	Debra R. Lehman
Thais Austin	John W. Lewis
William J. Barnet	Willie C. Lewis
H.R. "Mickey" Bentley	Eddie Ludwig
Samuel Bieri	Ruby R. Manen
Ben Bloom	Robin Matthews
Stanley G. Bullard	Bill McLemore
Mr. and Mrs. J. Kirk Cansler	Richard H. Miner
R.A. Carnes	Eric Mitchell
Janice Castillo	Richard Moody
Mr. & Mrs. David Cobb	B.E. Moore
Ann Denkler	Tom Murphey
Patricia J. Dobbs	Margarette J. Nance
Johnnie P. Dorset, Sr.	Ann G. Parker
J.A. Dunbar	John H. Parrish
Roger Durden	Don Phillips
Karen Ebert	Ina L. Phillips
Christopher A. Faurie	David Pickering
R.A. Fernandez	John Pierce
Nancy J. Fobb	Joann Ralston
Susan Toomey Frost	Louise Reinhardt
Gustabo L. Garcia	Laurie Renfro
Jack Gay	John N. & Jo Rewjuk
John R. Gilchrist	Peter Rieck
John A. Goeke	Anthony B. Ross, Sr.
Richard Greenblum	Gay Ruggiano
J.J. Greene	Tom Sabel
Douglas Ham	David A. Schlothauer
Bob Hammond	Jonathan D. Scott
David Helfert	Luther Simond
Steve Helfert	Daryl Slusher
Hugh K. Higgins, Jr.	Shannon Stenberg
Dianne Hill	Albert Stowell
Mel Hinson	Blucher S. Thard
Allan R. Hogan	Jacqueline Thomas
John E. Horton	Frank and Kathleen Wallace
Louis F. Janosek	R.J. Wieland
Dr. James E. Jarrett	Raymond S. Wittig
Dennis Jasek	Mickey L. Wright
Milton & Beverly Jensen	Anne S. Wynne
Roland H. Johnson, Jr.	Danny Zieger
Lewis O. King	
Roger Kintzel	
Mollie Kloepper	
Tim Knapp	
Carolyn G. Knight	
William D. Koons	
David G. Krausse	
Walter Kuenast	
Catherine LaBonte	
Susan La Rande	

**APPENDIX D - AIR FORCE POLICY - MANAGEMENT OF
ASBESTOS AT BASES FOR WHICH THE GENERAL SERVICES
ADMINISTRATION IS THE DISPOSAL AGENT**

AIR FORCE POLICY

MANAGEMENT OF ASBESTOS AT BASES FOR WHICH THE GENERAL SERVICES ADMINISTRATION IS THE DISPOSAL AGENT

INTRODUCTION

Asbestos in building facilities is managed because of potential adverse human health effects. Asbestos must be removed or controlled if it is in a location and condition that constitutes a health hazard or a potential health hazard, or it is otherwise required by law (e.g., schools). The hazard determination must be made by a health professional (in the case of the Air Force, a Bioenvironmental Engineer) trained to make such determinations. While removal is a remedy, in many cases management alternatives (such as encapsulation within the building) are acceptable and cost-effective methods of dealing with asbestos. The keys to dealing with asbestos are knowing its location and condition and having a management plan to prevent asbestos containing materials that continue to serve their intended purpose from becoming a health hazard. There is no alternative to management of such serviceable asbestos containing materials, because society does not have the resources to remove and dispose of all asbestos in all buildings in the United States. Most asbestos is not now nor will it become a health hazard if it is properly managed.

There are no laws applicable to bases that specifically mandate the removal or management of asbestos in buildings, other than the law addressing asbestos in schools (P.L. 99-519). Statutory or regulatory requirements that result in removal or remediation of asbestos are based on human exposure or the potential for human exposure (e.g., National Emission Standards for Hazardous Air Pollutants [NESHAPS] = no visible emissions; OSHA = [..number..] of airborne fibers per cc). There are no statutory or other mandatory standards, criteria, or procedures for deciding what to do with asbestos. Thus, health professional judgment based on exposure levels or potential exposure levels must be the primary determinant of what should be done with asbestos.

On December 29, 1989 the Air Force adopted a policy for managing asbestos at bases being closed pursuant to the Base Closure and Realignment Act (P.L. 100-526). The Air Force is the disposal agent for those properties and is entitled to use the sales proceeds to offset the costs of base closure and realignment. Accordingly, the policy supports removing asbestos in circumstances where a building is unsalable without removal, or where removal is economically beneficial (e.g., the increase in subsequent fair market value exceeds costs of removal).

The Air Force, however, is usually not a disposal agent for real property and improvements. Federal law makes the General Services Administration (GSA) responsible for disposal, and makes the sales proceeds unavailable to the agency which determined that the property was excess to its needs. Absent legislation like P.L. 100-526 which changed these procedures for five particular Air Force bases, the Air Force has no authority to dispose of closed bases or to make use of sales proceeds to offset closure expenses. In such circumstances the Air Force will follow the standard governmental practice of making the property available to GSA for disposal "as is, where is." The Air Force will survey for asbestos and inform GSA of its presence and condition but will remove it only where necessary to protect human health.

The following specific policies will apply to bases closed or realigned for which GSA is the disposal agent:

1. Asbestos will be removed if:
 - (a) The protection of human health as determined by the Bioenvironmental Engineer requires removal (e.g., exposed friable asbestos within a building) in accordance with applicable health laws, regulations and standards.
 - (b) A building is, or intended to be, used as a school, child care facility, or hospital.
2. When asbestos is present but none of the above applies, the asbestos will be managed using commonly accepted standards, criteria and procedures to assure sufficient protection of human health and the environment, in accordance with applicable and developing health standards.
3. A thorough survey for asbestos (including review of facility records, visual inspection, and, where appropriate as determined by the Bioenvironmental Engineer and the Base Civil Engineer, intrusive inspection) will be conducted by the Air Force prior to sale. This information will be reported to GSA in accordance with their regulations.
4. Encapsulated asbestos in a building structure, friable or not, is not regarded as hazardous waste by the Air Force, nor does encapsulation within the structure of a building constitute "storing" or "disposing of" hazardous waste. Asbestos incorporated into a building as part of the structure has not been "stored" or "disposed of."
5. Friable asbestos, or asbestos that will probably become friable, that has been stored or disposed of underground or elsewhere on the property to be sold will be properly disposed of, unless the location is a landfill or other disposal facility properly permitted for friable asbestos disposal.
6. Since other considerations must be taken into account at bases that are continuing to operate, this policy does not apply to them, nor is it necessarily a precedent for asbestos removal policy on them.